K
e
42

MEDICAL EXPERIENCES
IN
INDIA

MAUNSELL

00069952

God.
617.7
Mau/Not
69952

NOT TO BE ISSUED
OUT OF THE LIBRARY.

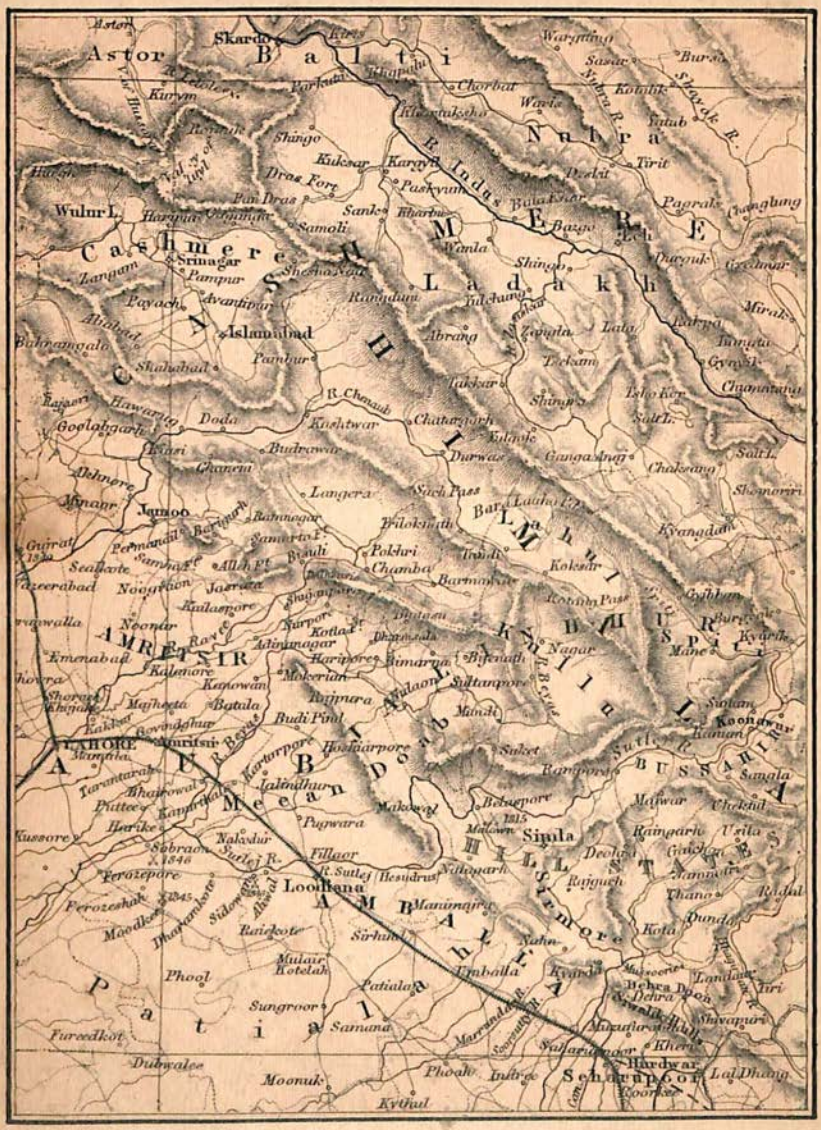
BOMBAY BRANCH
OF THE
Royal Asiatic Society.
CLASS

Digitized with financial assistance from the
Government of Maharashtra
on 05 October, 2018

MEDICAL EXPERIENCES IN INDIA.

MAP OF THE UMBALLA DISTRICT,

PART OF WESTERN HIMALAYAS, & CASHMERE.



NOTES

OF

MEDICAL EXPERIENCES IN INDIA

PRINCIPALLY WITH REFERENCE TO

DISEASES OF THE EYE

69952

BY

S. E. MAUNSELL, L.R.C.S.I.

SURGEON-MAJOR, MEDICAL STAFF.

LONDON
H. K. LEWIS, 136 GOWER STREET
1885

00069952

PREFACE.

The following pages have been compiled from notes in the author's possession taken mostly in the Umballa Division of the Punjab, India, where he happened to be stationed during the years 1881, 1882, 1883. They refer to experiences mostly amongst Natives, Hindoos and Mahomedans, and more especially to the subject of ocular affections as found by him to exist amongst them.

The notes were originally loosely strung together without any intention of publication. They were collected solely with the object of enabling at some future time, a retrospective view to be taken of a tour of Indian service, the monotony of which previous experience had left behind a recollection only too vivid, as well as of professional work done under unusual and peculiar conditions.

There is probably nothing new presented to the reader, and with the exception of the circumstances under which the notes were taken, there is possibly not much to interest any person unacquainted with the author, or who does not possess some knowledge of the district referred to; or again, who may not find himself with the prospect in view of an early visit to India.

Younger Officers of the Medical Service of the Army, who happen to be in the latter position, and who may

chance to read these pages, may possibly meet with something to interest them, more especially should they feel inclined to step beyond the boundary of the mere routine of official duties.

To any thus disposed, they are offered with the diffidence of one who is very sensible of the imperfections of his own professional acquirements, and with a hope that they may convey some idea of the surprisingly large field existing in India for the exercise of the branch of surgical science more especially alluded to, or of almost any other which the reader may make particularly his own.

CROYDON.
August, 1885.

MEDICAL EXPERIENCES IN INDIA.

WHILST serving at the Cape in 1871, I had to deal with several cases of diseases of the eye amongst soldiers, and often then had occasion to regret that my acquaintance with the use of the ophthalmoscope was very limited.

I can well remember the case of a soldier of the Royal Artillery, who was invalided on account of a supposed tumour in the brain, and who interested me exceedingly; his pale face, fixed, and widely dilated pupils, and total loss of sight, are still quite fresh in my memory, but with the slight knowledge I then possessed of the *metrology* of the eye, I could not explain to myself the meaning of the changes, which a regulation ophthalmoscope revealed to me.

I was induced by such cases to study the matter specially when I returned home, and had the advantage of getting practical lessons from a late eminent specialist in Dublin.

Officers in the Medical Staff are, unfortunately, not often in a position where they can avail themselves of the teaching of the heads of their profession, or where they can attend the clinics at the Metropolitan Hospitals, but I had the good fortune to be able to take advantage of this whilst stationed at Aldershot in 1877-1878 and later; I then availed myself of the kindness of Mr. Nettleship, the head of the Oph-

thalmic Department at St. Thomas's Hospital in London, and paid frequent visits to his wards, ophthalmoscopic room, and operating theatre; my brother officers at Aldershot kindly permitted me to see their cases, and gave me the benefit of their opinion regarding my own, and through the kindness of the officer in charge of the Cambridge Hospital, I had an opportunity of taking several cases to London, where my opinion was rectified or confirmed.

For want of suitable accommodation at Aldershot for studying the ophthalmoscope, in the then temporary hut hospital in the South Camp, I converted a hospital hut close to my own into a room for that purpose, when blankets were fastened up against the small windows, and the doors closed, the low dark hut made a capital ophthalmoscopic room, in which I was able to examine my cases for refraction and other purposes; and I was surprised to find very great differences amongst men passed into the service as emmetropic, but who were both hypermetropic and myopic, the latter to a very large extent, in some cases having large myopic crescents at their discs.

How they had succeeded to evade the test-dot examination, was not quite clear, in some I found large patches of choroidal disease of long standing in quite young soldiers, causing great impairment of vision when the subject looked in a certain direction, which ordinarily he would not have been called upon to do when undergoing the examination as a recruit, and which would thus easily escape observation.

However, experience thus gained, determined me in or-

gard to all my own recruits to submit them to trial by Snellen's test figures and types in addition to the test-dots in future before I passed them fit for the service.

I was placed under orders for India in 1880, before leaving I had some very interesting cases under my care which I mention by way of practical illustration of the opportunities, which may open themselves out to an officer in the medical service of the army.

Private ——, 18th R.I., was lying asleep (as he stated) on his cot, in his hut in the South Camp, Aldershot, when a comrade entered and struck him on the left brow with a stick; soon afterwards he was brought to the Cambridge Hospital, for some days the eye could not be examined, owing to the swelling of the eyelids and face; as soon as I could make an examination I found the eye extensively injured, the lens dislocated upwards, lying in the vitreous at an angle of 45°, the lower edge which had become opaque, was visible, extending right across the dilated and fixed pupil, the lens could be distinctly seen, cloudy looking as in commencing opacity, and pressed back into the vitreous; I could see the lower part of the fundus including the disc and vessels. It was a very serious case as regards the safety, not only of the eye more immediately concerned, to have a lens thus forced in and projecting on the one side back into the vitreous, and on the other against the ciliary zone, but to the other one, and as the eye was a source of danger to its fellow and exceedingly painful, competent authority advised excision, which was done.

Private ——, 19th Foot, master shoemaker, came with

blindness of right eye. Outwardly the eye presented normal appearances, ophthalmoscopically, the vitreous was so cloudy that the fundus could not be seen in detail, he was kept under treatment for several weeks, and then at his own request was discharged to attend occasionally; he did not come to hospital again for four months, he then came with a painful eye, dilated pupil, atrophied iris, secondary cataract, and tense globe, in fact with a glaucomatous eye.

Mr. Lawson, of Moorfields Ophthalmic Hospital, gave his opinion on this case and recommended excision.

Sergeant ——, 19th Regiment, was struck by a splinter whilst at the rifle range, attending his annual course of practice; I saw him in half-an-hour afterwards, I found a wound at the inner sclero-corneal junction of the left eye, from which the aqueous humour escaped freely, the iris was adherent to the lens opposite this point; it was evident the splinter had penetrated at least as far as the lens; the question was, did it enter the vitreous and was it still in the eye, no other trace could then be found of it.

As soon as the eye became quiescent and fit for examination, I found the vitreous very cloudy, with large floating opacities as if the remains of a hæmorrhage, and a large detachment of the retina in the lower and outer quadrant, associated with a great defect of the visual field.

This case was also submitted to the opinion of a skilful metropolitan ophthalmic surgeon, who agreed as to the nature of the case and course of treatment. I kept him for a long time under observation lest urgent symptoms

should arise, but the eye remained quiet up to six months after the injury, when I lost sight of the case. It could not be satisfactorily determined whether the retina was detached by access of foreign body or by "contre coup."

A child of a soldier living in the camp was brought to hospital by the mother, who stated she saw a yellowish object behind the pupil, I dilated the pupil with atropine, and found a yellowish-white reflex returned from the fundus, it was suggestive of "glioma," and I explained the nature of the case to the mother, suggesting removal of the globe. She objected to this treatment at first, and at several other visits she paid me; on the last occasion I saw the child in June 1880, the growth had burst through the ocular tunics, and protruded as a large fungous mass, liable to sudden and alarming hæmorrhages. Of course all hope had long since gone.

I joined at Umballa, in the Sirhind division of the Punjab, in January, 1881, there was no civil surgeon in the cantonments, though there was a most energetic staff surgeon, through whose zeal a capital charitable dispensary was subsequently built there, and endowed; it so happened that I had at my disposal some spare time, which I made use of in collecting some cases amongst the large native population, and forming a nucleus for future ophthalmic practice. I found considerable difficulty at first in getting natives to come to me, as they each individually, not unnaturally, like to see a commencement made on someone else, rather than on their own person.

One day I induced a boy of 15 years of age, whom I had seen daily, sweeping the roads in cantonments, and who

was half blind apparently, to come to my house to be examined, I found he was a capital specimen of double coloboma, his pupils were exactly like key-holes, the imperfect lower part being deficient right down to the periphery.

The fundus, in each eye was well worth an examination, there was a coloboma, or cleft in each choroid as well. He came to me daily for the express purpose of being examined, each time I increased his ardour by a small present in the shape of one anna, and in the meantime occupied myself in manufacturing an arrangement for his better sight, which would at least prevent the glare annoying him whilst at work. This consisted in blackened metal discs, pierced with a central aperture for each eye, the discs I placed in an old pair of spectacle frames, with this contrivance he was delighted, and so was I. One day he returned, bringing with him his father, a man of 50 years of age, with double cataract, in beautiful condition, father and son requested me to "make the eyes" in this case too.

I was rather perplexed as to what I should do, to operate on cataract many things were in my mind essential to success. A hospital in which to keep the patient, attendants to help him, assistants to help me, dressers, a place wherein to operate, instruments, chloroform, antiseptics, and a heap of appliances. If I could have found a fully equipped hospital, and hospital staff, and were I surgeon to the same, the operation required to be done would be a matter of no difficulty, and could be done in a few minutes. There was no use in even thinking, or enquiring if such luxuries were to be had in the station. Medicines and instruments I could get by purchasing them. A hospital,

attendants, assistants, etc., I had either to do without, or to manufacture myself. However, it appeared inhuman to let the poor man go away in his present state if he could be relieved. I told him to come next day. In the meantime I cleared out my coach-house, and put the dog-cart under a tree, and made the empty house an operating theatre. I then turned out some idlers, who I found had appropriated to their own use some empty out-houses. I sent to the bazaar, and got some native bed cots, and a quantity of calico and soft linen to make pads and bandages. I purchased some chloroform at the chemists. I borrowed a case of eye instruments, for the occasion, from the military hospital.

On the following day the man came to be operated on. I had my arrangements made with the important exception of assistants. I could not send the patient away whilst I waited for trained assistants. I knew that if I delayed a day in all probability I should never see him again. I had two very sharp intelligent servants, one a "Bhisti" or water-carrier, and the other his son, also a water-carrier. They were only too willing to assist at an operation so full of interest, as the "making of an eye."

I seated myself on a low stool at the head of the operating couch on which the patient was placed, with a chair on either side on which my instruments and bandages were laid within a convenient distance, so that I could at once place my hand on anything I wanted.

I instructed my two native servants as to their part in the performance, which consisted merely in holding the patient

quiet, in case he struggled under the anæsthetic. I had a basin of antiseptic fluid (saturated solution of Boracic acid) at my feet, on the ground. I gave the chloroform, after having examined the patient in the orthodox manner, and then proceeded with the operation, the operation was satisfactorily completed on the right eye, and although I knew it to be a little contrary to custom to do both at once, yet the left looked so inviting, and the man took chloroform so well, that I extracted the left lens also.

The man's friends, who were all the time spectators by agreement previously made by them, out of sympathy with their relative, now demanded to see what I had taken out of the eyes, and I accordingly handed over the two opaque lens to them with much pleasure. I took the usual necessary precautions as to after treatment, kept the man in the extemporised hospital, and discharged him in seven days. The operation was a complete success in each eye.

Inspired with confidence at the fortunate result of this operation, the natives of the cantonments and town came daily, and when I returned home from military duty in the forenoon, I always found a number of persons waiting to see me. I fitted up an ophthalmoscopic room in my bungalow, saw my patients in my verandah, cases for operation I sent to the operating theatre, the remainder I treated as each case required. I had an extraordinary number of cases of ulceration of the cornea, with and without hypopyon, of corneitis, staphyloma, obstruction of lachrymal sac, pannus due to granular lids, nebulæ and leucoma, numerous cases of diseases of the iris, choroid and retina.

A very large number of cases of cataract came, some of them specially interesting, as lamellar, pyramidal, secondary cataracts. Numerous cases of luxation of the crystalline lens, the lens being seen, either swinging in the vitreous, opaque, partly attached to its original site, or could be detected with the ophthalmoscope as an opaque body lying in the vitreous.

These dislocated and couched lenses were at first difficult to account for. During my residence in India, on this occasion, I saw many hundreds of cases in which the lens could be detected in these positions, and many came to me, requesting me to do something for them under such circumstances.

I became so familiar with the appearance of an eye with its lens thus displaced, that I could at once, almost without inspection, tell the owner that I could do nothing for him. A low form of inflammation had been set up, resulting in blindness. Every case that presented, gave the same answer to my enquiries, viz., that he had been treated for cataract by a native.

What takes place is this, a native, known to be skilful in dealing with cases of cataract, perambulates the district, armed with a long sharp needle, he puts a value on his knowledge, and charges from Rs. 2 to Rs. 8 for the operation according to what he can in his judgment get out of his victim, he covers the blind man's head with a cloth just admitting enough light to enable him to see what he is about, he pushes his needle through the cornea and into the lens, forcibly thrusts it aside out of sight into the vitreous, then dis-

engages his needle and withdraws it. The person thus operated upon, can count fingers which are then held before his eye.

The opaque mass has disappeared from view, the cure is apparently complete, the operator pockets his fee, and decamps, leaving the patient with a worse fate in store, viz., irremediable loss of sight, which comes on only too surely after this treatment.

I collected some very good cases of glaucoma, which I relieved by an iridectomy, and by eserine; of retinitis pigmentosa, accompanied by atrophy of the optic nerve, and opacity of the posterior pole of the lens; of diffuse neuritis, acute and chronic; of atrophy of the optic nerve.

I performed a great number of iridectomies for corneal opacities; several for restoring vision in cases of lamellar cataract; and a good many in cases of glaucoma. In addition I had a great number of cases of ulceration of the cornea, accompanied by onyx, or hypopyon, or both combined, these I treated in the ordinary manner, viz., evacuation of the pus, rest and antiseptics.

In such cases, I found a little finely-powdered iodoform, dusted into the eye, a most remarkable adjuvant, the lax suppurating tissues seemed to clear up wonderfully, and the pain disappeared much more quickly than when any of the other disinfectants, as boracic or weak carbolic acid for instance, were used.

Several of the above cases were published in the *Indian Medical Gazette* of 1882, 1883, 1884.

Numbers of cases presented themselves with perforation of the cornea, and prolapsed irides in varying degrees,

from slighter cases, in which the ulceration had gone as deep as Descemet's membrane, which was plainly seen protruding through the floor of the ulcers, to graver, in which large sections of iris, as large as a split pea, prolapsed through the cornea, and which were hopelessly lost eyes. In a great number the ulcerative processes had gone further still, and resulted in staphyloma of the cornea, these also presented themselves in almost every degree of magnitude. Some in the stage of incipiency, in an ulcerated and thin cornea unable to withstand the tension during the stage of repair, a mere bulging of a cicatrix; provided these came soon enough I often relieved them greatly, and in some cases, I believe, checked the staphylomatous tendency by frequent paracentesis and iridectomy, combined with eserine, others in which a large tumour projected between the eye-lids almost as large as the globe itself. Staphylomata as large as a pea were exceedingly common. I was asked daily to remove the unsightly protuberances, which I generally did in the case of females, who were most urgent in their request.

Another form of eye affection was also very common, it is not often seen in England, I think, but during the time I was at Umballa I met very many instances of it.

I refer to that atrophic condition of the conjunctiva known as "Zerosis" or "Zerophthalmia," in all the cases I saw, it was due simply to neglected inflammation. I have seen cases in all stages, from the incipient, in which the upper layers of the conjunctiva alone were affected, giving it an appearance of dryness only, up to a degree where the whole stroma of the conjunctiva was engaged, in which the

entire anterior portion of the eyeball had become, as it were, covered with a thin film of dry tissue, through which the pupil could with difficulty be recognised, and by which both upper and lower lids were glued down to the corneal margin, the lashes quite disappeared, not a vestige of either *cul de sac* remaining. The globe moving in its socket in a limited excursion, but almost indistinguishable from the rest of the face.

Some of these were the most pitiable cases I have seen in India, they were all men below middle age, were not by any means anæmic, or badly developed, in every case both eyes were affected.*

It was useless to attempt anything for such cases, even if anything could be done, natives of India, of every class, are impatient of delay as regards the cure of their maladies, they do not mind delaying a week or ten days, if in the end they see a prospect of restoration of sight, by means of an operation, for instance, or of relief from the pain caused by a vesical calculus, but it would be difficult to induce them to remain much longer than that, to expect the average Hindoo or Mahomedan to attend an out-patient room continuously for sometime, under ordinary circumstances would be quite vain. If the cure cannot, in some way or other, be more or less completely effected in a few days, they generally disappear, probably never apply elsewhere leaving the rest of the cure to "fate." As regard their peculiarities in this respect, and in the matter of caste prejudices, a few interesting cases will be mentioned further on.

* On this subject the following will be found of great interest, Bemerkungen über die Enstehung des Zerophthalmus, V. Graefe's *Archiv fur Ophthalmologie*, xxix., 3.

From several causes I was not able to do any operations before Jan. 9th, 1882, from that date up to March 31st, I performed eighty-one extractions of cataract on either eye. In seven instances both were done at the same time, these cases in which both were extracted at once were very successful. Amongst the others there were two failures from diseased fundus, and one from hæmorrhage into the globe; in the Table is an exact statement of the result in each case. In all there was good vision, in the majority it came up to a good standard with the aid of glasses.

I felt at some difficulty with regard to procuring glasses, and for a long time did not see my way to manage it. Many, probably the majority, of the persons upon whom I operated, belonged to the "Ryot" or agricultural class, and to them glasses were not a necessity in the performance of their daily round of work, tilling the field, and so on, but a great many were of a class that could read and write, or that followed some trade or occupation requiring near vision, to these spectacles were an essential, more especially after they had discovered, by looking through my cataract glasses, that they were by aid of these just as capable of carrying on their work now as formerly, before blindness had come upon them.

I wrote to two firms, one in Bombay and the other in Calcutta, stating the facts of the case, that I wanted cataract glasses for charitable purposes, and requested them to inform me at what rate per pair they would supply me with lenses set in the commonest frames, the reply I received was from one, Rs. 5 a pair, and from the other, Rs. 6 per pair; I could not very well manage this.

I was using chloroform on four, perhaps six, patients daily, at Rs. 8 per pound; atropine at Rs. 2 for every five grains; and eserine at Rs. 1 per grain; a Rupee being then about equal to 1s. 8d. of English money, sometimes to more, or less (I merely mention these prices in order to show how exorbitantly drugs are charged for in India), not to speak of the less expensive necessary drugs and appliances. I could not in addition supply spectacles at Rs. 5 or Rs. 6 a pair, Indian pay and allowances with even a more favourable rate of exchange for home remittances could not stand it; some of those operated on could have paid for theirs no doubt, but I had not commenced with the object of extracting money; my sole object from the beginning had been to extract diseased lenses, and remove other impediments, as far as I could succeed, from the path of vision, and to this object I meant to adhere; most people do not object to pay for their amusements, and I did not mind if mine cost me a moderate sum.

I now remembered, that in my visits to Umballa city I had often conversed with a venerable old Hindoo, from whom I purchased the linen for my bandages, and that he wore a pair of spectacles with extraordinarily thick lenses.

I went to him, and asked him to inform me where he had procured them, he told me he had bought them in Saharunpore, gave Rs. 1 for them. There was only one man there who sold them, but he had forgotten his name.

I was a little wiser now—not much—but I had something to go farther on. I meant to go to Saharunpore and find this spectacle seller if possible. Saharunpore is 60 miles from Umballa, it contains, according to official statistics,

published in 1881, 40,680 inhabitants, and to find this individual, who sold the pair of spectacles with thick lenses to my friend at Umballa, in a Native city of such dimensions, did not seem at first sight a matter of ease or certainty, however I would try. I went there by train, obtained the services of a police constable to aid in the search, and after spending a whole afternoon and visiting an endless number of shops, I found the man I wanted, he had six pairs left, I bought the lot at 12 annas a pair, and advanced yet another step by learning from him the name of the maker, who lived at Lucknow; I subsequently wrote to the maker and got as many as I wanted at eight annas a pair, this I could stand; they answered the purpose very well, they were not cast in as true a mould as if they had been supplied by an English maker doubtless, nor centered as accurately probably, but in both these respects no very serious faults were to be found.

I first tried to get on without the use of chloroform in operating for cataract, but as I found in one or two cases that it very nearly resulted in the loss of the eye, through the movements of the patient whilst the operation was being done, I subsequently used it in all my cases; the natives of India suffer very much from conjunctivitis and irritation of the conjunctiva, the result of dust and glare, and I found it most important to take many of the cases under treatment for a few days for this cause before I ventured to operate.

I was most particular as regards the use of antiseptics. Much as antiseptic surgery is needed at home, it is still more necessary in India. Before operating I washed the

forehead and lids with a solution of carbolic acid, or boracic acid, and washed out the upper and lower conjunctival *cul de sacs* as well; I kept my instruments in a shallow basin containing boracic solution by my side on a chair, whilst I operated seated at the head of the operating couch. After the operation I washed the eye freely with boracic acid solution, in some cases I dusted finely powdered iodoform on the globe before closing the lids, and always placed pads of boracic acid wool and fine linen on the eye before bandaging it up.

In operating, I had to put sponges out of court altogether, in the first place I could not possibly get a sufficient supply, except with great trouble and expense, and secondly, fine linen soaked in boracic acid, was just as good for the purpose, a small piece was used and discarded at once.

I had to be most careful as regards the use of bandages; at first I satisfied myself with applying a light bandage, just one or two turns, but I found this quite ineffectual, especially in the case of females with whom I had the greatest difficulty, in preventing them either from removing the bandage completely, or from lifting up the pad, in order to look out and satisfy themselves of the result of the operation. I soon found that it was quite useless expecting them to act as an European would under the circumstances, and I always applied a long roll of bandage, and either pinned it on or sewed it on, and gave the relative, who attended upon the patient, strict orders as regards non-interference. It was a *sine quâ non* as regards attendance, that each person brought a friend or

relative, who would stay in charge of the case, make the food, and otherwise attend to requirements; in some cases this duty apparently became irksome, and the attendant disappeared, in which event I had to make one of my own servants do the work.

In every case, after an operation for cataract, I had to keep the eye thus bandaged up for about six days generally, to obviate interference, and did not interfere myself, unless in case of pain being complained of in the eye, or uneasiness due to bandage being possibly too tight; and here again I had always a great deal of trouble with the women as regards their hair and ears; their long hair, which they would not permit to be cut, was everlastingly in the way; in addition, they came with heavy silver or brass ornaments suspended from the lobes of their ears, which made the ears pendulous, and difficult to get out of the way.

I found this matter of bandaging and rebandaging, perhaps several times a day in case of the women, a great trouble having always to do it myself. I never handed this over to anyone.

As a rule always from twelve to fifteen cases were in my hospital, after operation for cataract, or after iridectomy for glaucoma, or leucoma; at first I had a good deal of trouble with them, as occasionally my servants came to me with the information that one would not stay, and was anxious to go home, and wished to see me on the subject; or that another had gone away and would come back to-morrow, in which case I generally found, that anxious and curious friends had

removed the bandage for the purpose of examining the eye, and that the patient was in great pain on returning, or that the bandage had been forcibly removed; or that a Hindoo would not remain in the same compartment with a Mussulman.

I had always to make arrangements for the separation of the castes, and to keep the males of the different castes apart as well as the females, also of course keep the females by themselves, the limited space available in my original bungalow, under these circumstances became too small for the requirements, and I had to take a larger one, more favourably circumstanced in having a number of servants' houses belonging to it, many more than required, all of which were converted to hospital purposes.

I also placed a Native attendant, whom I hired for this purpose, in charge of the sick, whose duty it was to see that no one attempted to leave the hospital, and who reported to me at once, in case of any attempt to remove a bandage, or in case of pain coming on in an eye.

When, unhappily, suppuration took place in a wound, not of common occurrence, I had to pay frequent visits to the hospital to see that fomentations were applied; in these cases the application of finely powdered iodoform acted in a very striking manner, not only did it stop the suppuration and induce a healthy state of the wound and conjunctiva, but relieved the pain in a marked manner; as regards this unfortunate accident, my most anxious time was during the first three days, once that period was over the eye was comparatively safe.

I attributed this, in nearly all the cases which occurred, to some chronic inflammatory changes which were going on in the mucous membrane of the lower lids, to which I have already referred as being very common amongst natives of all classes, more especially to changes of this nature in the neighbourhood of the lachrymal sac, and which extended thence by a process of infection to the corneal wound. Some cases I traced to this, others I could not in any way account for, as they were in every instance carefully examined previously to operation, with a view to detecting such tendency.

Such cases were as usual marked by severe pain, and swelling of the lids, coming on on second or third day, but in a few the suppurative and inflammatory changes took place and ran a course quite unattended by pain, and with very slight swelling, and not till the bandage was taken off on the fifth or sixth day was it discovered, when a small speck of suppuration, seen on the boracic pad after its removal, was only a too certain indication of the serious process which had taken place, and which, notwithstanding the energetic application of repeated fomentations, combined with antiseptic irrigation and iodoform, as a rule went on to the permanent damage of the eye in all cases, but more hopelessly though with less pain in the latter class of cases, who were mostly of a delicate constitution.

Some of these were much benefitted by giving them stimulants and quinine, a medicine that natives will always take, though they positively refuse to take some other kinds.

One of my most satisfactory cases in every respect, was a fine old Sikh pensioner, who came from Loodianah in the Punjab, a distance of about one hundred miles, a friend of mine found him going about the station enquiring for the gentleman who "made eyes" as he termed it.

He was a fine old soldier, who had served in a native cavalry regiment all through the mutiny, his beard was in the usual Sikh fashion divided in the middle at the chin, each half being then carried upwards and either twisted round the ears, or held up by his turban; he wore several medals and clasps on which the names of Delhi and Lucknow were conspicuous. He had double cataract, and had been blind for five years, I operated on both eyes with complete success. He remained with me for three months, off and on, he would go away for a week and then return, always bringing with him at least one friend suffering from some ocular affection.

One of the cases he brought was very instructive, the man had very dim vision with his right eye which looked sound enough, externally I could see nothing the matter with it, the tension was normal, the iris moved freely, and I could see nothing but a small movable body, about as large as a split pea, under the conjunctiva in front, and above the cornea, there was not the slightest lesion or sign of abrasion of cornea or sclerotic; on examining with the ophthalmoscope, I found the lens to be absent, he denied having ever been operated on by any European, and I knew the natives practiced on each other but one operation, viz., that of couching; in such a case I generally discovered the lens lying in the vitreous

as an opaque mass, which in this case was not present; on further questioning him, he said that five years before this, he had received a blow on the eye, which was followed by swelling and redness, and ultimately by very dim vision.

I now removed the small tumour from the conjunctiva and on examination found it to be the lens, which had evidently, as a result of the injury, been dislocated, and forced through the ocular tunics, and deposited under the conjunctiva where it remained, his defect of sight was easily rectified by means of suitable spectacles.

I mention a second case of similar nature, except that the lens remained partially attached. A Hindoo, aged 50, fell from the roof of a bungalow, three and a half years ago, he dropped on his head, and since then the sight of his left eye became gradually worse and finally extinct. I found the opaque lens partially attached still, but freely swinging about in the fluid vitreous, like a door on its hinges, falling forward and backward with the movement of the head.

A third case was one in which both lenses were dislocated partially downwards, half the lens in each eye was seen as a semilunar opaque mass blocking the lower part of the pupil. He denied having been operated on by a native or otherwise injured at any time, he was of course quite blind.

By way of giving an idea of the number of interesting cases which presented themselves, I may mention that on the 27th, 28th, and 29th of March I operated twelve

times for cataract, did four iridectomies for glaucoma, and several for leucomata on the cornea, transplanted a pterygium in two cases, performed paracentesis of the cornea, for ulcer with hypopyon, in four cases, slit the canaliculus and probed the nasal duct in two cases.

By the end of March it had become so hot, that it was unsafe to operate, and I sent cases away telling them to come in the following cold weather; in addition my instruments were getting blunt and used up with frequent sharpening, in order to keep them fit for use I learned how to sharpen Graefe's knifes, as also to sharpen the triangular knives for iridectomy, and to grind points on them as well, failing this, it would have been necessary for me to send them to Bombay or Calcutta which meant a delay of a fortnight at least.

I had ordered a fresh supply of instruments from London, and necessary drugs and antiseptics, with the exception of boracic acid, from Bombay, as I found I could get them much cheaper, including carriage, from thence, than from a local chemist. Boracic acid I made myself from material purchased in the bazaar. My preparation was not quite so well crystallized nor as clear looking as that purchased, but had all the necessary antiseptic properties.

I made an exceedingly useful "protective" gauze out of material which I purchased in the bazaar, with the exception of the carbolic acid contained in it. This gauze proved of great value not only in these cases but in many other surgical affections.

It consisted of resin dissolved in methylated spirit to

which were added carbolic acid and castor oil, in the proportion of one part of each of the latter, to two of resin, and four of spirit; this was heated, and the gauze was steeped in it till thoroughly impregnated, it was then taken out and rolled up tightly, when opened it was found that the antiseptic had become evenly permeated through the gauze, which thus formed an admirable antiseptic application, free from stickiness or rigidity, and had in addition the important merits of being easily procurable, made without difficulty, and very inexpensive. The carbolic acid in the above proportion was present in about thirteen per cent., and could of course be increased or diminished at will.

During the hot weather of 1882 I went on a walking tour through the Himalayas, I had visited most of the hill stations within reach, and had a strong desire to visit Cashmere, and to enter it by a road not usually much frequented by Europeans, mainly with a view to seeing the native population of the hills, as well as for the sake of the scenery.

I accordingly went to Daramsalla at the head of the Kangra Valley, on April 30th, and remained for a couple of days with a friend of mine, in medical charge of the small military station of Bagsoo.

I had intended crossing the Naran Gatta pass, a high pass in the ridge which lies immediately behind Bagsoo, and to get into the Kulu district by that way, but the pass was closed by snow, and would not be open for some weeks probably; in the mean time I had only two months leave, and I had to get to Cashmere in that time (dis-

tance 274 miles, or twenty-two marches by the official route), which would take at least twenty-five days, allowing three or four days halt on the way to rest servants and followers.

Daramsalla* and Bagsoo lie under a splendid peak of the outer Himalayan ranges, which rises to a height of 16,315 feet, the snow lies on it till late in the year; the "Naran Gatta" pass, which I meant to cross, was only 11,900 feet.

The Kangra Valley is at an altitude varying from 2,000 to 4,000 feet above sea level, it is bounded on the north by the great Dhaoladhar range, just alluded to, and on the south by the Beas River, a low chain of hills rising to an elevation of 3,900 feet separate it from the plains, it is about thirty or forty miles in length and breadth, with a surface broken here and there by low hills, it is terraced in many places by cultivators, in order to retain water, the valley enjoys a rain fall of 141 inches, which descends all through the year, but mostly in June, July, and August; it is well wooded and richly cultivated, presenting in the autumn a wide sea of rice, the soil is mostly a rich loam; wheat, Indian corn, and barley are also grown, and tea is a good deal cultivated under European management.

The people are mainly Hindoos, amongst whom is a migratory class, mostly shepherds, who inhabit the slopes of the hills above the valley. Living in a warm, freely watered valley, where rice is extensively cultivated, it

* Daramsalla is a Sanatarium in the Himalayas, 6,111 feet above the sea. Bagsoo is a small military station adjoining, and is 4,058 feet above sea level.

is not surprising if the inhabitants suffer a great deal from malarial diseases—fever, dysentery, diarrhœa, a low form of pleuro-pneumonia, and goître, in addition there is frequently found a taint of scurvy amongst them.

Miasmatic fever is universal, there are annually heavy visitations of intermittent fever, outbreaks of cholera are not infrequent, small-pox prevails in spring, the mortality from diarrhœa is very heavy, leprosy is common, goître is very common, and cases of cretinism are also to be seen; a visitor to the valley is forcibly impressed with the small-limbed, coarse featured, prematurely aged, dwarfish people, he often meets. That goître is exceedingly prevalent in Kangra and its neighbourhood, may be gathered from the fact that amongst the cases of sickness treated in the dispensaries at Daramsalla and Kangra town, during the five years ending 1873, goître formed over thirteen per cent.

This fact is attributed to the water, which is taken from the streams, and which is clear and has a good taste; in some of the wells the carbonate of lime amounts to, from eleven to sixteen grains per gallon; carbonate of silica, from eighteen to twenty-one grains per gallon.

Whether the goître is due in this district to potable water or not, is not a question to be discussed here. It, however, may be mentioned, that at a distance of fifteen miles from the town of Kangra, in the adjoining "Joalla" Valley, at the foot of a low range of hills close to the holy city of Joalla, a saline spring issues forth from the rock, which yields a salt that is said to be a cure for incipient goître, this water has been analysed and the analysis

showed the presence of iodine to the extent of ·08 to ·094 per 1000 of water.

Looking upwards from the valley towards the hills, during clear bright weather, the view is magnificent, as some peaks of the Dhaoladhar range attain to a height of 19,000 feet, and are covered in their upper portion with snow from early in November till the middle of March, when it begins to disappear, and about the middle of July only a little is left on the highest summits; above 12,000 feet the hills are almost barren, the lower ridges are, however, fairly covered with forests of pines, Himalayan oak, and rhododendron; horse chestnut, maple, walnut, and elm also grow well.

The climate of Daramsalla is for the greater part of the year cool and healthy; from June to the middle to September during the rains, it is damp, foggy, and depressing, the station is then for days together veiled in clouds, which lift for a time only to display the mass of clouds with which the valley beneath is covered; before and after the rains the climate is dry and bracing. Snow falls in January and February, but seldom for more than three or four days together; owing to the nature of the soil, and the considerable slope of the surface, water runs off quickly, so that there is seldom much permanent dampness in the ground.

The highest maximum temperature is about 80° Fah., the mean air temperature is 64° Fah., there is an absolute range of temperature of 75°, and a mean daily range of 17°.

A friend of mine, Major S., R.E., had arranged to join

me, and we were to have gone on this expedition together, on the principle that it is pleasant to have a companion who will wag the loquacious jaw, and flap the sympathetic ear; but much to my regret, at the last moment he was prevented leaving Umballa, and as I could not go at any other season, I set off alone; my route lay through Chamba, Badrawar, Kishtwar, then over the Murbul mountain by a pass 11,600 feet above sea level, and down into the valley of Cashmere at Islamabad.

I made my arrangements at Daramsalla and laid in supplies for a month, I knew I could not reach Srinaggar, in Cashmere, much under a month, and in the mean time had to carry all my supplies with me except fowls.

I could purchase fowls in the hills at most villages, and could generally get milk also, and eggs, but nothing else, my cook laid in a supply of potatoes, tinned soups, and bacon, besides flour to make cakes — commonly called "chuppattes," *O dura Messorum ilia!*

I knew, however, that I could not eat the latter, as I could never get them properly made, I accordingly purchased one and a half dozen loaves of bread, cut each loaf in half, and placed them all in the sun till they were thoroughly hard and dry; the loaves thus took the form of "rusks" almost; I then rolled them up in a waterproof, and had them carried in a hamper. At my meals daily I broke off a piece, soaked it in cocoa or tea, and ate it thus, otherwise I should have been obliged to go without.

Where one can get fowls, eggs are of course procurable, so that my daily ration consisted of tinned soup,

fowl, potatoes, bacon and eggs, in addition I brought with me one bottle of whiskey, but I found that the air of Himalayas at the altitude of 7000, 8000, and sometimes 10,000 feet, at which heights my path lay for the greater part of the way, was so light and invigorating, that I only took a little whiskey occasionally, and on my arrival at Srinaggar on the 24th of May, I had one third of the bottle left; my path which lay during its whole course through a perfect maze of hills beautifully wooded with the summits clothed with pines, and generally with a sprinkling of snow on them, was in many places very steep and precipitous, and quite unfit for ponies.

I was informed by the natives, that the gentleman who had last travelled along that path two years before, had brought two ponies with him, and that he had lost them both by falling over precipices; in one day I crossed three suspension rope bridges, which were stretched over wide and wildly rushing mountain torrents. I had to get a native to carry my spaniel across in his arms.

These mountain streams rush impetuously down from higher levels, probably from glaciers, the water is exceedingly cold and of a leaden hue, the rope bridge is generally fastened to a tree on either side, and in crossing, one has first to go down to within a short distance of the level of the stream, and then ascend the opposite side, all the time the water rushes past below, with irresistible force.

There was so little level ground available in some places in this part of the Himalayas, that often I could scarce find room for my small Cabul tent, and on one occasion it

had, owing to want of space, to be pitched on the flat roof of one of the Native huts, in a village where I halted for the day, the proprietor made no objection to having the pegs for the tent ropes driven into the roof of his dwelling, before leaving next morning I rewarded him with a small sum as ground rent.

There was a marked contrast between the inhabitants of the hills amongst whom I now found myself, and those of the plains I had just left. The hill men and women are a strong, well built, and hardy race, their clothing consisted of a thick woollen material, the women had large silver ornaments suspended round the neck, the hair plaited and the heads uncovered, the men carried hempen ropes round the waist, which partly served to confine the woollen garment, partly were used for the purpose of fastening on heavy loads, their food was of the simplest kind, nothing but cakes made of flour and water, of which they ate an enormous quantity at each meal, their drink cold water.

I could not help feeling surprised at the loads they carried on the back, and their powers of endurance, as well as at the large muscular and bony frames, which were produced out of such simple food, nor could I help contrasting their alimentary requirements with those of an European in the plains of India, who often finds a supply of meat, three times a day, in pretty large quantity, as well as a liberal allowance of beer, frequently at each meal, to say nothing of intermediate draughts of this or other stimulants, an essential to his mental and bodily welfare.

I made diligent enquiries as I proceeded, with a view of finding out what sort of diseases the hill people suffered

from, more especially as regards goître and intermittent fever, as the relationship between these two affections, as occurring in the sub-Himalayan districts, is well known, also respecting eye affections, the reply I generally received was, that if I could wait long enough some cases might be found, but that with the exception of fever none of them were common, and indeed during the entire march from Daramsalla to Islamabad, in the Cashmere territory, although I enquired in every village I passed, I did not see a case of either.

It was very different after I got into the Cashmere territory. When I left the pure bracing air of the lofty ridges, and descended into the Cashmere valley, I found myself at once in the midst of a weak and effeminate population, a mixture of almost every race in Northern India.

The city of Srinaggar, the capital of Cashmere, is very much overcrowded, it is said that some 200,000 or 250,000 inhabitants are in occupation of an area barely large enough for 50,000, whether such is the case or not, I cannot tell; it is also said that it is probably the dirtiest city in India, and that is saying a good deal; I can easily imagine it.

When I reached Srinaggar on 25th May, the greater part of the valley was under rice cultivation, and covered with water, the floor of the valley is about 6000 feet above the sea level, and as I had come down from a height of over 11,000 feet, where the air was fresh and cool, sometimes cold, but bracing always, I felt greatly the change to a low, damp, hot valley, quite hemmed in by lofty mountains, which kept out every current of air. The European visitors

were making their arrangements for a migration to Gulmurg, the Sanatarium of Cashmere, and as I had no wish to remain longer than was just necessary to enable me to see this far famed city and neighbourhood, I devoted ten days to the accomplishment of that object, and then quitted, what seemed to me to be, a hot, moist, relaxing, if not absolutely unhealthy, climate.

During July and August the air of the valley is particularly close, hot, and oppressive, during these months and afterwards malarious fevers are very common amongst the natives, goître is found amongst the inhabitants of many of the villages, supposed to be due to the impure water of the rivers and lakes.

However interesting it might be to me, to give in detail the notes I made of the march from day to day, it would probably become very monotonous and tiresome to the reader, and would be out of place here. I will give, therefore only one or two extracts from my diary.

Wednesday, May 10th. I was up at 4 a.m., and awoke my servants and coolies, got a fire lighted an egg boiled, and some cocoa to drink before starting. I had my tent packed and all my kit and men off by 5 a.m., and immediately commenced the ascent of the Padri pass, the narrow path lay for a great part of the way along the bank of an impetuous little torrent, which came rushing down, and winding through the hills from the foot of the Padri mountain, for the first two miles the incline was very steady, by degrees the mountains closed in on either hand, leaving nothing to separate them but the winding path, and the narrow stream, which rushed along with a loud roar.

The higher peaks of Kara, 11,930 feet, of Tonbsi, 12,418 feet, and Chatadul, 10,418 feet, towered above my head on the left, covered with snow, and wooded with pine and oak, up nearly to the summit, on the right were Jala, Tanna and Katri, closing in like a wall.

The air inthis deep and precipitous glen at 5 a.m. was cold, damp and raw.

Into many places the sun never entered, the precipitous over-hanging mountains on and either hand keeping out even the vertical rays.

Narrow deep ravines on each side carried down streamlets to swell the main torrent, most of these were full of hard frozen snow, an accumulation of years evidently, which extended down to the waters edge and across the narrow path I had to traverse, completely blocking it, fortunately the snow was so frozen on the surface that it almost resembled ice, and carried my weight without impress, it required a blow of my iron shod staff, with as much force as I could lend to it, to penetrate an inch. I had to cross innumerable obstacles like this.

In some places the narrow pass was full to a depth of many feet with frozen snow, and in one instance I walked about two miles over a thickness of some 60 to 80 feet of snow, beneath which the mountain torrent disappeared for a time, in one or two places this snow bridge had fallen in at the centre, leaving large cavities, in which down deep at the bottom I saw the foaming, leaden-coloured, ice-cold water rushing along.

On the banks of the stream, where bare of snow, I found

soft green moss with a profusion of bright pink primulas growing in clusters of large flower heads.

Caladiums abounded in the rock crevices. I saw beds of "forget-me-not" (myosotis), wild strawberry plants in flower, the blue iris, violets, white and blue, water ranunculus, columbine, and a number of other plants, inhabitants of a cold climate.

I came across the quite recent tracks of a bear, also of the argus pheasant, the progenitor of our peacock according to Darwin, and as the sun got up, heard jungle fowl crowing frequently.

The Padri mountain rose straight in front like a wall, on each side and behind the mountains closed in, leaving a dark gloom. The sun shone over the crest of an adjoining ridge just as I got to the steepest part of the climb, and for three quarters of an hour I ascended, what seemed a precipice more than anything else, a height of over 1000 feet.

I then came to a flat surface of over a mile in width, mostly covered with snow, the height of which a pocket aneroid made 9000 feet.

The scene now changed as if by magic; I found myself on a level with the tops of the greater number of peaks and ridges, I had been looking up to from the deep glen below; towards the south, east, and west, in whatever direction the eye turned, nothing could be seen, but a vast collection of densely wooded hills, here and there a stray peak rising higher than the rest; the three highest peaks were still above me; towards the north, a splendid chain of massive piles of snow mountains, in the midst of

which lay the vale of Cashmere. I had said good-bye to the wild deep valleys of the "Chumba" state, a walk of half an hour across the narrow level piece of ground brought me to its edge. I looked down to my halting place, which was almost a straight drop of 3000 feet below, and in the distance saw the territory of Maharajah of Cashmere, with the Murbul mountain covered with snow, over which I had to cross before I could enter the valley, yet distant ten marches.

The marches were of different lengths, some only eleven miles, some seventeen, and one was twenty-four; as I approached the Murbul pass, the natives told me it was not open, and that no one had yet crossed it this season, that snow was expected, and might fall any day, consequently I hurried on, so as to judge for myself, and if possible forestall the next fall of snow, which might close the pass effectually for days. I reached the foot of the mountain on Saturday, 20th May. The previous day it had rained so heavily, that the natives could not carry my loads along the mountain track, and I had to halt having done only half the march; in consequence I had to do nearly double the distance, or twenty-four miles on 20th, to make up for lost time. But at an elevation of 10,000 feet, and being in good walking condition by this time, I felt not the least fatigue on my arrival at the "Singpura" near the foot of the pass.

I suffered much from inability to sleep at night, and used to lie awake in bed for hours from this cause, which was most annoying, especially as I had to be up at 4 a.m. always, to get the march over as early as possible in

the forenoon, whether this was due to the high elevation or not, I could not say. However, I felt it greatly when I had to be up long before daylight on the following morning, 21st May, in order to get well up into the snow before the sun came out.

I started to ascend the pass at four a.m., long before dawn, had I waited, my progress would have been greatly impeded, owing to the melting of the snow, and the difficulty of walking over the wet slushy ground.

The coolies had their loads made lighter by dividing them into a larger number, so as to get over the pass more quickly; in addition to my servants who carried nothing, there were sixteen natives carrying my tents and baggage. We walked for about four miles over crisp snow, frozen rivulets, and snow bridges, the snow getting thicker, and thicker, as we approached the foot of the pass.

The summit of the mountain lay straight to our front, and looked exceedingly grand in the clear star-light sky; right and left stretched away on each side the snow ridges, of which the peak in front was the highest point, and about 1000 feet below the summit of which lay our path, if path it could be called, for nothing was visible, but pure white snow without a black line or speck upon it.

The natives in the village of "Singpur," where I had spent the night, told me the pass was only just open, and that but one or two persons had crossed up to the present time this season; that snow had fallen again, within the last day or two, and partially obliterated the track, but that it was possible to get across with a guide.

I secured a good guide, who was a most communica-

tive, intelligent, strapping young fellow, he conducted me by the shortest route, and we were well advanced on the road by 6 a.m.

I kept continually looking up, towards the mountain, and asking where the path was, and how we were to discover it, but saw nothing save snow, and felt distrustful as to the final result.

However, my guide was very confident, and kept pointing towards the mountain, and as appeared to me, towards a slight ridge, running straight up the side, till it finally terminated in the peak itself, this did not at all add to my confidence; however, there was no use in arguing, I had either to follow, or remain till the snow melted, and the path became disclosed, which meant delay of some days possibly, and included deficient food supplies, of which I had just enough left to last till I reached Srinaggar, accordingly, and with the feeling that I was not by any means master of the situation, I followed my guide.

Approaching the pass, I saw at the very summit, some black objects, which could not be clearly distinguished at that distance; as I observed them, their position seemed to change, they appeared to move slowly along the ridge, close under the peak, and then downwards towards the foot of the mountain.

I looked up in the direction of these objects whenever able to remove my eyes from the slippery ground, on which I had to walk with great care, lest I should lose my footing; with a back ground of pure white snow, these slowly moving, black objects, gave me the idea of flies, crawling on a white surface, or, probably, some black ani-

mals, possibly wild sheep; finally I directed my guide's attention to them, after looking at them for some time, he said they were people coming down the pass, which was thus evidently open on the other or Cashmere side—this was encouraging, so we proceeded.

My guide said that the safest course to adopt, would be to ascend along the crest of the ridge leading to the summit, from which we could branch off as we neared the top, that it was useless endeavouring to find the proper path, as it was quite blocked up, and any attempt in that direction would fail, besides the black objects were descending by the ridge.

The ascent was most laborious, at every few steps I slipped, and floundered, falling repeatedly in the snow, which was recent on the surface, and came up to my knees. When I plunged my alpen stock into the snow I often failed to find anything solid, and frequently miscalculating and finding no resistance, I went after it, falling into deep snow, this fortunately was solidified at no great distance down, so that I did not disappear very far; finally I got my guide to pass one end of a stout rope over his shoulder, whilst I fastened the other end round my waist, and then I got on better.

My daily route had, from the outset, been straight across the hills, taking hills and valleys, ravines, water-courses, and precipices, as they occurred, it is useless to try to avoid obstacles of this nature in the heart of the Himalayas, there they are, and they have to be faced. Consequently, after doing twelve to twenty miles a day over a country of that description, I expected

to have made the ascent of the pass without much difficulty.

I found, however, that at every four or five steps I had to stop to breathe, I seemed to slip back at each step almost as far as I had advanced in the previous one; half way up to the summit, the heavy clouds that were collecting, settled down, and it began to snow, no shelter was to be found, and we had to go on in a storm of snow and sleet; dense clouds hung over the hills beneath, so as to shut out the view almost completely during the greater part of the ascent; we now met the persons whom we had seen descending the pass, they had come across from Cashmere, and said that the snow was lighter on that side, but there was little time to compare notes, we had to get on.

Notwithstanding their loads, the coolies gained the summit of the pass almost as soon as I did. It was quite astonishing the comparatively easy manner in which they got up, as it seemed to me almost an impossibility for men to carry loads up such an incline, in the face of a blinding snow storm and through snow up to their knees every step.

My spaniel shivered with the cold and kept close under my lee for shelter.

We reached the top (11,600 feet) at twelve o'clock, it was still hailing and snowing, a cold piercing wind blew strongly about the crest of the ridge, and nothing was visible but snow in every direction; the view being limited by the thick clouds to an extent of a few yards on either side. I felt bitterly cold, my hands and feet were almost

benumbed, little sensation being left. I was exceedingly glad when I found myself at the top of the pass, and getting under shelter of the peak, wrapped a thick plaid around my shoulders, and waited for about ten minutes till my servants, and the men carrying tents and food collected; I had had nothing at starting but a couple of eggs, and a cup of cocoa with some bread steeped in it, and now rummaged about in my small provision basket, for something to eat, the basket was full of snow, but the waterproof in which the things were wrapped had kept them dry.

Taking the first thing to be found, which was a piece of bread, so hard, that I could not chew it, I rolled it up in snow, then in my pocket handkerchief, which I held in my hand, till the snow had melted a little, and had softened the outer part sufficiently to enable me to eat some of it; at this moment the storm ceased, and the clouds lifted for a short time on the side towards the plains, just long enough to enable me to look down for a few minutes over the Badrawar and Kishtwar valleys, through which I had lately passed, disclosing to view a magnificent panorama, composed of hill, valley, cultivated fields, and winding streams; soon the clouds closed in again, and a thick mist settled down over the summit.

Now commenced the descent into the Cashmere valley. During the first part of the descent, the snow lay thick, and it was difficult to get on; in keeping the track, and following the steps of those who went in front, I often slipped and fell into the deep snow on either side.

In getting through the snow I found the great advantage of

"putties," or woollen bandages, which natives wear round their legs in the hills, and often in the plains, in the cold season, they proved of immense advantage, not only as a support to the muscles, but the snow did not penetrate readily, and none adhered to the surface

A few yards down the hill, we came to a clump of trees composed of pine and birch, the men who carried my loads broke from the pine trees tolerably large branches, thickly covered with thin acicular leaves. I could not at first make out what their object was, in thus breaking off these branches, they were quite green and not fit to burn, and their loads were to my mind, quite heavy enough already.

Their motive, however, soon became apparent, for each of the men placed his branch on the snow, then seated himself thereon, and holding the stem in his hands, in front between his legs, used it as a sort of sleigh and glissaded down a short slope, of about one hundred yards. My guide suggested that I should follow their example, which I did, and arrived safely at the bottom.

In about half an hour, we got down into good hard snow, and were able to get on better, for the greater part of the way I ran down on the frozen snow, and soon got into a warmer atmosphere, and dense pine forests; the ground became more level, and we followed a winding track through deep shady glens, gradually descending, till we reached, about six p.m., the small village of Wankrinki, not far from the foot of the mountain on the Cashmere side.

Here I selected a large deodar pine tree under which to pitch my tent. The coolies came in one by one later on; as their loads were opened, and their thick woollen

garments unfolded, large lumps of frozen snow tumbled out; we were all thoroughly wet, cold and wretched, all my things, clothing, bedding, etc., had been as usual, carefully wrapped in waterproof before starting, and were consequently dry, so I was able to get into dry clothes.

A slight coating of crisp snow was removed from the surface of the ground, my tent pitched, and a fire lighted, and after having some hot soup I got into bed as soon as possible Next morning at seven a.m., I continued my course towards Srinaggar.

I reached Islamabad near the head of the Jelum river on May 23rd, and after having walked 274 miles in a mountainous country in 23 days, it was with no small degree of pleasure that I lay at full length in a boat which I hired, and allowed myself to be rowed down the stream to Srinaggar; during its whole course the banks on each side are so high that one can see nothing of the country.

Whilst I remained at Srinaggar, I pitched my camp in the "Chenar Bagh," on the banks of a stream, under some very fine spreading trees; these "Chenar" trees, as the plane trees are called in Cashmere, grow to an immense size, I measured one of a clump of six, under which I and my servants with my camp spent a couple of days, the trunk was 40 feet in girth, and the shade cast by the branches of the six covered an area of 168 yards in circumference, the thick foliage kept out every ray of sun during the entire day.

Cashmere is a district concerning which an immensity has been written by competent writers, it would be quite useless, as well as superfluous, my attempting to describe

it; there are certain facts, however, salient features in almost every account of the country, and its ruler, which may bear repetition, such as the following:—

Cashmere heads the list of native feudatory states included in the province of the Punjab, and with thirty-five or thirty-six other states and chief-ships is subordinate to the Punjab Government; the Maharajah or potentate has two residences, one at Srinaggar, and another, which may be termed his country residence, at Jummoo, some distance away from the former place.

Annually, on 24th of May, he celebrates the Queen's birthday, by giving a dinner at Srinaggar, to which the Resident, generally an officer high in the Indian Service, is invited; as well as other officials connected with the state, and all the European visitors who have entered the valley with permission, and who may at the time happen to be at Srinaggar. The Maharajah does not always come himself to this festival.

He pays an annual tribute of shawls, and shawl goats to the British Government. He has an estimated revenue of 55,75,780 Rupees, and an army of 1400 cavalry, 25,600 Infantry, with 160 guns. He is the owner of a tract of country containing some of the loftiest mountains in the Himalayas, possessing a population of 1,534,970 souls, over whom he is granted full powers of life and death; with an area of 64,000 square miles, having as its chief feature Cashmere, which is noted as including within its confines some of the loveliest scenery in the world, also, as a feature of secondary importance, a city (Srinaggar) through the centre of which flows the Jelum river, along whose banks

are built the palace, the Residency, and the shops of the principal shawl merchants, all of which one visits by means of boats. A city in which possibly more inhabitants are permitted to occupy a proportionately smaller area than in any other in or on the confines of India, and which is probably more uncleanly than any other; by virtue of all these possessions he is allowed to take precedence of the thirty-five or thirty-six other feudatory chiefs in the Punjab.

He has more guns fired in his honour, on his arrival at, and departure from, Durbar held by his Excellency the Governor General in India, and is expected to make more noise generally in going and coming, than any one of the others, and perhaps more than the majority supposing they were all put together. His rank and wealth entitle him to as many wives as he pleases, yet he is not happy, and why?—Because the soul of his royal father, or grand-father, which, as was vouched for by priestly advisers of unimpeachable authority, had already passed through various phases of existence and appeared under several previous aerial forms, having become weary of the barbaric splendour surrounding the ruler of Cashmere, decided to take its departure irrespective of the feelings of the good old Hindoo, and accordingly left him, in search of "fresh fields and pastures new," leaving it for some time a matter of uncertainty as to its whereabouts. Not for long, however, for surrounded by persons of keen insight into such matters, no very insurmountable obstacles came in the way of its being traced, to the satisfaction of the bereaved son, to the watery element,

and finally to the body of a certain fish, which the same priests said had now become tenanted by the soul of his father, and that being finally wearied with the "monotony of everlasting change," it meant to stay there.

It would doubtless be a matter of great congratulation to anyone to have such matters cleared up with this ease and certainty, it may seem a pity that it had not been arranged before hand, and thus much anxiety saved to the relatives of the deceased, as well as trouble and time occupied in the search; however, there it was, and by all account there it meant to stay, consequently the clear duty of the successor to the kingdom was to make such arrangements as would ensure to the soul of his late father, after its many former changes, the repose so much required whilst in this its latest abode.

The fish concerned was further stated to frequent a certain part of the river Jelum, and to the Maharajah it now became, not unnaturally, a source of unceasing care and anxiety, as regards this fish, which had thus been honoured by having the guardianship of his revered relative's perverse soul, that it should not be captured and eaten, presumedly soul and all, possibly by some person unconnected with the reigning family, or even still worse fate, by an European. Consequently strict orders were issued admitting of no evasion, and prohibiting to all and sundry, the right of fishing in the particular part of the stream frequented by the fish in question.

I have often tried to see in the Jelum a fish likely to be the honoured guardian of a Maharajah's soul, but in water which in consistence falls not very far short of average

pea soup, and of an uninviting look and odour, I invariably failed in my search, and certainly had my cook, who was a Mussulman, and owned to strong feelings on the subject of Hindooism, placed on my table for breakfast or dinner a fish caught in the Jelum, he would have done so with the risk of certain consequences which need not be mentioned, let him have in view, either the praiseworthy object of the temporal elevation of his master by the possible chance of eating a fish containing the soul of a late ruler of Cashmere, or the questionable one of the eternal debasement of a royal Hindoo, by cooking and serving him up in this form on the table of an European.

Looking back over the history of India, it is a far cry from the year of grace 1885, to the days of Clive, or Warren Hastings; even since 1840, (I believe I am correct in the figures), when the existing treaty rights were conferred upon Cashmere, one generation of men has passed away, the feet of them that carried them out may be waiting for a second, whilst a third is rapidly springing up, and yet, this ruler to whom have been granted full powers of life and death over a million and a half of people, and who is possessed of immense wealth, passes the waking hours of a monotonous existence in the consideration of two ideas, "yet a little slumber, a little folding of the hands to sleep," and the best method for providing for the safety of a fish, that the soul of his father has selected as the object to which it will be bound till it is fit to be absorbed into the divine essence;—*O tempora et mores!*—the British Empire standing at his gates!!—how long will the annual tribute of a few shawls and shawl

goats, continue to be accepted as the measure of his idea of the grandeur of that Empire, as well as a token of his grateful acknowledgment of the favour conferred upon him, in his being thus any longer suffered existence, instead of being removed from the country over which he is ruler, bag and baggage.

Being provided with the necessary passport of admission to the territory, I was invited with other European visitors to the dinner given by the Maharajah in honour of Her Majesty's birthday, I was not able to go, however, as I had not brought with me in my limited baggage, either a suit of evening clothes, or of uniform. Further I had been living now for close on a month on tinned soups and fowl, and as I heard that these items held a prominent position in the 'menu,' if they did not form quite the foundation of the dinner, I thought my loyalty would not be questioned were I to celebrate the double events of Her Majesty's birthday and my arrival at Srinaggar, by having for my dinner in my tent, what was to me a great treat just then, part of a loin of fresh mutton, followed by the customary honours.

I was obliged to leave Cashmere for Murree on my return journey on the 15th of June, and arrived there on the 22nd. I made Murree in seven marches from Baramulla, at the entrance to the Cashmere Valley, making a total of thirty-five, from Daramsalla, or over 400 miles accomplished on foot; this does not include many small excursions, made to various places of interest in the valley.

As an example of the difference between the hardy mountaineers of the higher regions, and the inhabitants of the valley of Cashmere; the former full of energy, and vigour, liberally found in bone and sinew; regardless of snow and hail, equal to an extraordinary amount of physical toil; the latter a miserable, weak-kneed race, as apathetic as deficient in bodily strength; I may mention that, when starting for Islamabad, from the village of 'Wangam,' near the foot of the Murbul mountain, it was as much as I could do to induce the coolies to lift my baggage.

They sat outside my tent, in the dusk of the early morning, huddled up in their blankets, declining to move, saying it was too cold, and the loads too heavy. At last, feeling annoyed with them, I went for the one who acted as instigator and spokesman; owing to a hurried movement on my part, which I subsequently regretted, the wretched man capsized in his fall a small earthenware vessel, from which embers and live coals fell and scattered about; I had not seen any fire, and could not at first make out whence the coals came from, I observed, however, that one or two of the men seated next him, against whom he canoned, had started up, and left behind where they were sitting similar vessels, containing burning charcoal.

I now found that they each had one of these under their blankets, for the sake of the warmth, and that this was the real cause of their disinclination to move.

It is a common custom for the Cashmerees to carry these portable stoves, on sitting down, the stove is placed

between the legs, with the blanket spread over it, so as to get the entire benefit; sometimes they go to sleep in this position, and their clothing catches fire, causing severe burns; numerous instances are to be seen of children and adults with extensive scars due to this cause upon the stomach.

I rejoined from leave, at Umballa, on 26th of June, and found myself once more under a punkah; every one who could possibly get leave had gone to some of the neighbouring hill stations; one or two showers had fallen but not enough to reduce the heat, which was excessive; still, I was glad to get back to my own house and household gods again.

After a year or two of residence in India, one cannot but be impressed with the regularity of the seasons; in most places in the plains, the cold season is succeeded by the hot dry summer, this again by the moist, warm rainy season, to be followed in its turn by the cold weather; with a little experience of the country, one could tell almost to a day, the date on which punkahs commence to work, and on which they are taken down, in any station in the plains, also on what day the first shower may be expected to fall, in the rains. The hot season in the Punjab commences in April, and lasts till the end of June, when the rains begin, and continue till September, after which period a pleasant, and invigorating, cold season gradually sets in.

During the hot season, frequent dust storms occur alternating with dead calms; on calm days spiral columns of dust arise, and travel onwards, whirling round continu-

ally, for one or two miles before subsiding; in the months of May and June the thermometer in the shade often registers 108°, during these months all out-door duties have to be done at very early hours, the greater part of the day being spent in the house, with closed doors and punkahs in full swing; during the night the heat is so oppressive that often sleep is unattainable, under these circumstances life becomes fearfully monotonous.

During the cold season, duty in the wards of a military hospital has commenced at 7 a.m. and occupies the whole morning, boards may have to be attended in the hospital, or outside, men have to be selected for the convalescent depots in the hills, during the ensuing hot weather, and various other military duties, inspecting men, or barracks, etc., which help to fill up the daily routine of the official life of an officer of the medical staff.

In the hot season, military duty commences at 6 a.m. and is over by 10 a.m. generally, after which a long day has to be spent in the house, till 5 p.m., with a thermometer rising gradually to 90°, or over, in the room. Under such circumstances it can easily be imagined, that every available resource is readily grasped at, with a view to lighten the long hours, when one is not actually engaged in professional duties. There was a very large military hospital at Umballa, and serious cases of sickness were of daily occurrence. Heat apoplexy was not uncommon, and called for urgent attention, severe forms of continued fever were continually under treatment; typhoid fever cropped up occasionally, and was always a source of much anxiety, requiring a long course of careful

treatment and nursing, the etiology of this disease was a fruitful source of speculation.

Interesting and important, as is the question of the nature and origin of the specific poison to which this disease is due, and the mode in which it is propagated in a cold climate, it becomes doubly so in India, where it seems in the generality of cases impossible to trace it to its source, either as derived from a pre-existing case, or as of pathogenic origin.

Sporadic cases appeared from time to time amongst both officers and men, very few, it is true, in proportion to the strength of the troops, but still such cases did occur, for which a cause could not be satisfactorily discovered, amongst persons living under precisely the same circumstances, as regards climate, food supplies, duties, and general hygienic conditions; a very brief experience of military duty in India, will soon demonstrate the great amount of attention, that is directed there to such matters.

It would seem, that in India this disease is capable of an independent, or a different origin, or that there is some disease not yet differentiated from typhoid fever, which originates in some different source, and is propagated in a different manner.

Apart from professional, or duty matters, there were various ways of getting through the afternoon, amusements which suited almost every taste, tennis, rackets, polo, whist; in the cool of the evening a pleasant ride, or walk could always be taken, and there was a very good club, which was exceedingly well managed by an officer of the

medical staff. I had no further opportunity of attending to ophthalmic work at Umballa, till the cold season of 1882-83. During November and December a few cases came under treatment, I performed seven operations for extraction, in two of these the vitreous was diseased, and one was lost through hæmorrhage from the vessels, at the ciliary region or fundus.

Whilst waiting for cases to collect, a friend informed me of the prevalence of night-blindness amongst the native workmen, at the head works of the Ganges canal at Hurdwar, about fifty miles from Umballa, and fifteen from Roorkee, in the North West Provinces.

It was stated that many of the workmen were led by the hand away from the works in the evening, in consequence of inability to see clearly after sunset. I got fifteen days leave and went to visit Hurdwar, I had a very good and fleet young riding camel, on which I often went thirty to forty miles a day with great ease. I sent him on in front as far as Saharunpore, and followed by rail in a couple of days; from Saharunpore I rode on the afternoon of December 23rd, a distance of some thirty miles, to Hurdwar, where a large party had collected from Roorkee for Christmas. I was very cordially invited to join this convivial gathering, and enjoyed it immensely, there were about thirty people, several ladies amongst the number.

Hurdwar is situated at the eastern extremity of Dehra Doon, a valley lying between the low Siwalik hills, and the outer Himalayan ranges; the district is noted for its game, almost every variety of game is to be found in the Doon, and in the low hills, which separate it from the plains,

shooting parties were made up daily, and many head of game slaughtered, comprising deer, pig, hares, partridges, pea-fowl, which were slung on elephants and carried home in the evening.

I saw several natives who suffered from night-blindness, and examined altogether about twenty who were thus affected; in none of them could I discover any organic changes in the fundus, such as are generally revealed by the ophthalmoscope, where "nyctalopia" is a symptom attending disease of the choroidal and retinal layers, but in all the cases thus affected, I found sufficient to account for the night-blindness, in the history of frequent attacks of ague, enlargement of the spleen, tendency to scurvy, and other signs of reduced general nutrition, it was in short, an example of "endemic nyctalopia," due to well recognised forces, a habit of body attributable to climatic causes, and certain conditions of life, amongst which malaria, defective hygiene, unsuitable food, and exposure to glare, were the leading factors, and capable of removal by attention to these particulars; quinine, better food, good sanitation, and removal from the malarious region, would no doubt soon effect a cure.

The majority of the workmen came from the "Doon," or from some of the valleys between the adjoining hills, and had suffered from intermittent fever, during the past wet season, showing traces of it in the pallor of the mucous membrane of the lips, the conjunctival folds, the large flabby tongue indented by the teeth, but more especially in the tumid abdomen and enlarged spleen; they were badly fed, badly housed, living in over-crowded hovels,

many of them sleeping in the open; in some of them there was a tendency to goitre, in others large bronchoceles were present.

From Hurdwar I rode through the "Doon" and back over the Mohun pass in the Siwalik hills to Saharunpore, and then by rail to Umballa again, leaving my camel to follow by road; about a week afterwards I received intelligence that he was lying sick on the road-side, about twenty miles away from Umballa.

He was fleet, easy going, and a good tempered animal, and I did not like to lose him, accordingly I borrowed another, rode out to where he was, and found him lying unable to move, with much swelling of both forearms; the "Sarwan" or keeper denied that anything had happened to him, and said that he was suffering from rheumatism. I doubted this very much, however, with a view to his being duly attended to, I directed him to be lifted on to a country cart, and carried into the station; after he had been a few days in my compound, and the swelling had gone down, I found that the bone, in each forearm was broken, there was not the slightest chance of his being of any use again, and as he was in great pain I had the animal shot. ..

In going to see him where he lay, I left my bungalow at twelve o'clock and got back before 6.30 p m., having stopped an hour on the road, the distance each way was over twenty-one miles, making a total distance of forty-two miles in five and a half hours, not bad for one animal carrying two people, myself and the "Sarwan."

Soon after this I got another very good camel, and

generally had one for riding purposes whilst I was in the plains. A good camel is invaluable to any one who wishes to go across country, more especially if his station is in the Punjab, and if he happens to be a sportsman. I have often ridden over forty miles at a time on mine without the least fatigue.

On a good road, or across the level plains of the Punjab, they will keep up a steady trot, at a speed of seven to eight miles an hour, for six or seven hours or longer, carrying two people.

I always rode in front, on an easy saddle, and steered; the "Sarwan" rode behind me; if I wanted to get down, he held the animal till I got up again; food required was carried in a small bag suspended from the saddle; you are thus quite independent, you can go anywhere on a camel in the plains that you can on a pony, provided the ground is dry, if it is dusty, so much the better; to do forty or fifty miles on horseback, would require horses, and syces, to be sent on in advance, a delay in shifting saddles, and an elaborate arrangement, as regards places for meeting, for giving food, and especially, for having a syce always ready, to take your pony when you wish to alight; with a camel all this is obviated, he will go all day without food, and will, in case of necessity, live well on the young shoots of the acacia.

He seizes a young acacia branch in his mouth, and liberally as these trees are supplied with thorns, draws the branch through, clearing off in the process, leaves, thorns, and all, which disappear down his throat, he ap-

parently never drinks, and can stand exposure to sun and dust.

A good camel costs from Rs. 170, and the saddle costs about Rs. 30, care must be observed in purchasing them, as a dealer may sell a very rough paced animal, or an ill-tempered one, such is not at all unlikely to happen, and serious accidents may result from the latter cause.

I always had mine on trial previous to purchase. One day I was having a trial of a camel that I thought of purchasing, whilst going along across country, at a pretty fair pace, he stumbled, and the rein, by which I guided him, broke off at the nostril, coming away in my hand, the animal collected himself, and finding he was free, went off as hard as he could, stretching out his long neck, looking round, now to one side, now to the other, as if exulting over his freedom, he simply went where he willed, first straight on, but finally taking a circuit, he turned in the direction of his own home, and did not stop till he came to a clump of acacia trees, after an exciting run of at least two miles.

I was in terror lest he should rush through these, with us on his back, it was dangerous to attempt to get down, if he had carried us through the trees, the results would have been almost equally serious, we were helpless in fact, fortunately he slackened his pace when he smelt the acacias, and finally stopped, the "Sarwan" then slipped off and secured him.

I intended to enlarge the sphere of my operations if possible during the cold season of 1882-83, and with this view rented a house, in the city of Umballa, four

miles from the cantonments, and used to go down there twice a week, on a tricycle, which I got out from London during the Autumn, attending on the other days to cases that came to my house, in cantonments.

I found, however, that I could not carry this on very long, the cases operated on required so much personal supervision, and were so liable to be interfered with, or to leave the hospital during my absence, that it was unsafe to leave them; numbers of persons came to the former, but I could not attempt any operations; in addition as many as I could attend to came every day in the week to the latter. Consequently after a month's trial I gave up the city hospital.

From January 4th to March 21st, I performed seventy-eight extractions, making with seven in November and December, altogether eighty-five during the cold season, these are included in table attached, in which the method of operating and results are shown.

In all these I administered chloroform, and as I had to give it myself, found the following method, though rough, yet extremely convenient, being unable to get a drop bottle; it had in addition, the advantage of preventing waste; I got a large common glass syringe, and before commencing operations, filled it from a bottle containing the chloroform, and ejected, as much as was necessary, on the lint lying over the patient's nose and mouth, whenever required; during the operation the syringe lay beside me on a chair, and was ready for immediate use.

At first, when operating for extraction, I used a cystotome, for the purpose of opening the capsule, in the usual man-

ner, but soon laid this instrument aside, and always performed this part of the operation with the point of the Graefe's knife; whilst the blade was in the anterior chamber, I advanced the point carefully along the front of the upper part of the lens capsule, opening the latter freely, then passed it across in front of the iris, transfixed the opposite side of the cornea, and carrying it upwards completed the section in the ordinary method, this procedure had, I considered, the following advantages.

Firstly, the opening in the capsule was made without difficulty when the aqueous was present, the cornea tense, and the pupil still dilated; the blade of the knife remaining in the corneal opening, the aqueous did not escape, and the pupil did not contract, as usually happens, immediately the aqueous fluid gets out of the chamber. Secondly, operating as I did without other help, than such as my two native servants could give me, I found that it was advisable to use as few instruments, as possible. If I asked them for an instrument I could never depend on the right one being given, but even had I the advantage of having one or two trained assistants standing beside me, holding ready for use, the particular instrument required, I still think I would have adhered to this plan of opening the capsule.

In operating I often felt that a few extra pairs of arms capable of being fixed on and removed, at will, and provided with automatic movements, one to give chloroform, a second to hand me instruments, a third to perform several other miscellaneous and necessary duties, would be exceedingly useful; but having to execute all these functions myself, with only one pair, as well as to

direct my, at first untrained, assistants, was a little complicated; and then having to make all the necessary arrangements before each operation, prepare antiseptic solutions, bandages, lint, protective, and, after the day's work, clean my instruments, and sharpen them, so as to be ready for the following day, a great deal of time was unavoidably used up, and considerable delay occasioned.

Let it not be supposed, that this was a case of operating indiscriminately, just for the sake of operating, not so, every case was taken on its merits, and only such as were likely to succeed, were operated upon. Each eye was examined as regards tension, mobility of pupil, evidences of inflammatory changes, or the reverse, sensitiveness of the fundus to light; the patient's general health was regarded as well, in case these were not favourable the case was rejected.

Natives in India are uncommonly shrewd in respect to all matters affecting their welfare, and failure on the part of an operator leads to diminished confidence on the side of the Hindoo, just as much as it would in a community in any other place. If a case was not likely to prove a success from what I could see, I said so, and explaining the fact clearly, declined to operate; from a pecuniary point of view, I had nothing to gain in either event; further, I had not the time to waste, nor a sufficiency of anæsthetics, or appliances to squander on fruitless operations.

I was anxious to ensure success, as far as lay in me to do so, as a matter of satisfaction to myself, as also with a view of impressing the native with a feeling

of confidence in his relation with an European, where every day furnished abundant proofs, that there was only too good reason, for his mistrusting the treatment he had to expect at the hands of itinerant natives, who offered a remedy worse than the original disease, who took his money, leaving in its place a legacy of incurable blindness.

Of the eighty-five cases of cataract extraction at Umballa during the season of 1882-83, failure resulted in eight, the remainder had varying amounts of good or useful vision, which I tested by means of type, printed in the Urdu language, approaching in size those of Snellen as nearly possible, in case of persons able to read, and in that of others, by lines, dots, or figured objects.

Amongst these cases I had two in which suppuration commenced in the corneal incision, and spread thence on the greater part of the cornea, in both instances this usually very painful process was quite unattended with pain, one was a male aged 70, and the other a female aged 35.

Besides these there were a great number of cases of corneal ulcers, with or without hypopyon; of leucomata, admitting of an artificial pupil being made, and many other descriptions of eye affections, as glaucoma, some suitable for iridectomy, some far advanced with deeply cupped discs, and almost complete loss of vision.

I had several cases in succession of atrophy of the optic nerve, for which I could not satisfy myself as to the cause, and some exceedingly interesting and unusually well marked cases of advanced neuro-retinitis in both

eyes. I give one of these, specially well marked, as an example.

March 12th. Palu, æt. 40, states that she became blind about six years ago, the blindness came on quickly, first in the left and shortly afterwards in the right, she has remained blind ever since. Vision in either = 0——.

When examined with the ophthalmoscope, the left disc was found to be more or less veiled by a haze, which covered, and partially obscured its edges, especially at the inner side, giving the appearance of a striated web-like opacity, from which a number of fine white radiating filaments passed across the fundus, in the direction of the periphery, this striated appearance being especially marked for about a diameter in breadth, all round the disc; outside this the layers of choroid and retina presented a fine pepper and salt appearance.

The disc was quite colourless, the vessels were seen on its surface as white threads, with the exception of two, one passing upwards, and one downwards, much reduced in calibre, which carried a thin stream of blood.

All the vessels, arteries and veins alike, could be seen radiating away from the disc, over the fundus, like thin white threads, without any intervals at which a trace of colour could be detected, except at the extreme peripheral termination of one of the vessels, where a little colour was observed; the finer ramification had completely disappeared, the main trunks alone being visible, arteries could not be distinguished from veins, the white, radiating, feathery looking, or web-like striæ at the disc, were peculiarly striking, there were several scattered patches of choroiditis also visible.

The *right eye* presented similar appearances. The disc was quite white, and had a striated look, narrow white striæ radiated across its edge, many of them extending far over the fundus, crossing and accompanying what seemed to be the vessels, but which were with difficulty distinguishable, being completely obliterated, and resembling thin white fibrous threads; a black spot due to an old hæmorrhage was seen about half a diameter to the inner side of the disc; on several places on the retina there were areas presenting an opaline appearance. There were several patches of choroiditis visible in this eye also.

It is difficult to get a clear history from Natives, as to previous disease, and I could not quite make out from her statements, what was the cause of the optic neuritis, but I believed it was due, to some inflammatory affection within the skull, as she had had severe pains in the head, which were most likely of specific origin. I had two other cases similar to this but not showing lesions to the same extent.

There were numbers of cases of pannus due to trachoma. Amongst these there was no exact proportion between the extent of the pannus and the degree of trachoma; in some the lids were much affected, thickened looking, drooping and extremely granular on the conjunctival aspect, with pannus present in only a moderate degree, in others an extensive pannus was visible, whilst the trachoma was much more limited than one would expect, which induced to the belief that there might be some other factor at work than absolute friction; provided they came regularly for treatment they readily improved.

They were mostly persons living under defective hygienic

conditions, in overcrowded or badly lighted and ventilated dwellings, much confined to the house and sometimes badly fed; a large proportion were women belonging to that class of native society in which the females are not allowed, under ordinary circumstances, to unveil their faces; they were brought generally in palanquins, or in carts drawn by bullocks, and closed in by curtains; they wore over their ordinary clothing a loose white vestment, which covered the head and extended down to the ground having an aperture protected by fine netting in front of each eye, leaving the wearer to a great extent independent of assistance.

In many cases there were no such openings for vision in the garments, and then assistance was required, as the woman was quite in the dark; these conditions could not be satisfactory to the persons doomed to lead such an existence, and certainly were not encouraging to any one who had to deal with them.

As further evidence of the peculiar customs of the higher classes of natives I mention the following circumstances, a man came one day from the neighbouring state of Putialla, he was an official in the service of the Maharajah, the possessor of numerous wives and of much property, he asked me to prescribe for one of his wives, who some years ago had completely lost the sight of an eye, after having suffered great pain, at intervals extending over some months.

The other eye was now becoming affected, the pain was severe, the sight becoming dim, and he feared she would lose it also.

I offered to accompany him at once and see his wife, but he said she was a "Purdah" lady and could not unveil her face; I explained that under the circumstances he might expect that the second eye would be lost similarly to the first; he persisted that the custom could not in this case be set aside, his wife's face could not be uncovered to let me see her eye, even the eye that was now involved could not be examined; being an European I could not receive permission even to enter the apartment she was in, as she was permitted to be seen by her husband and her immediate female relations only.

He begged me to give him some medicine for her, he had already received some from Lahore and Bombay, which had been of no use, but perhaps some might cure her now; he would willingly pay any sum I chose to name. Of course I replied this was quite impossible, and as he would not agree to my seeing his wife, or even her eye, the interview came to an end.

On another occasion I was asked to see a "purdah" lady, who was suffering from what the husband supposed was cataract. I was conducted through a number of passages to the part of the dwelling she occupied, and found myself confronted by a large white curtain, behind which I heard the females of the house discoursing.

I was requested to advance towards a particular part of the screen in which a slit about three inches long opened as I approached, and an eye was placed at the back, opposite the hole; the woman had cataract; the eye was then, on her husband giving the order, removed and the fellow eye placed opposite the slit, there was an opaque lens in this also.

I professed willingness to operate, saying that a cure might be expected with some confidence, and that no pain should attend the operation, at which all the household might be present, if they had any inclination.

The husband declined, but would make his wife take any medicine I chose to order for her. I told him that nothing but operation would succeed, however he would not hear of it, as it would involve breaking through a custom the observance of which was apparently in both these instances of paramount importance, certainly more so than the preservation or restoration of eye-sight.

In the end of March I was ordered with a detachment of the Leinster Regiment from Umballa to Solon, a small station in the hills on the main road to Simla, it stands about 5000 feet above sea level, it is cool enough during the hottest part of the year to admit of the troops living in wooden huts, a very pleasant breeze blows during the day through the neighbouring valleys, and over the station from the direction of the plains which serves to lessen the heat of the sun's rays, the huts are built on one of the numerous spurs of the "Krol" mountain, which rises to a height of 11,982 feet above sea level, and which forms not only a very notable land-mark, but is also interesting as presenting to the geologist a special geological formation different from that of the surrounding hills; foliated metamorphic rocks, shales and flags, which can be detected passing in a straight line and arising into similar high peaks at distances many miles east and west of this spot,

Solon is the capital of a diminutive native feudatory

state, covering an area of sixty square miles in extent, with a population of 10,000, under the rule of a native chief styled Rana, whose capital and dominion he keeps in awe by a force of thirty-five men; it comes twenty-second in a list of thirty-six such chiefships which are included in the Punjab Province, of which Cashmere stands at the summit in point of rank and precedence, and that of Ratesh which has an area of only three square miles, and a population of three hundred comes last.

In a small station with a handful of troops and an average daily sick of eight or ten in hospital, there was a prospect of having rather a dull time. To alleviate this in some measure, I visited the Rana soon after my arrival, and offered to look after all the sick persons in his state that he could collect, if he would on his side provide an empty house in his bazaar, which I could convert into a hospital; a couple of servants to keep the place clean; and a few drugs and instruments for operating with, the total cost of the latter items would be about ten pounds, or one hundred rupees. This I considered he might do out of his revenue, which is estimated at eight thousand rupees per annum.

Knowing how gratifying it is to the feelings of a native to be asked by persons in a high position to do anything, I wrote to the Deputy Commissioner of Simla, a friend of mine, asking him to use his influence with the Rana, he very kindly did so without delay, and after this the Rana sent to know what was required, as he would supply everything.

He gave a half empty house, saying he would clear it out,

and have it cleaned at once, also that he would see about the supply of funds being provided immediately.

I waited for several days, and as the house was not cleared out, nor the money given, sent to him, and requesting a little more expedition on his part; to this application he returned an answer that he could not afford the money, and that he regretted he must give the house to a friend as a shop.

I was accordingly obliged to make the best arrangements possible, and meaning to go on with my plan independently of the Rana, sent out emissaries through his district, with instructions to bring in all the blind that could be found.

I occupied a small hut containing two rooms, with a bath room and a store room, also a small verandah on one side, over-looking the Simla road. The store room became an ophthalmoscopic room; the verandah an operating theatre; the stable a hospital, supplemented by a tent pitched in a shady place on a narrow level piece of ground under the hut. By degrees I collected a few cases of ocular affections, and between the April 21st and August 19th I performed sixty-seven extractions of which three were failures, these cases are included in the Table at the end.

There was some difficulty in getting the people to come, as during the hot season they did not care to travel, besides the expense of living in the hills is greater. There was also the difficulty of getting an attendant to guide them along the mountain paths, and remain with them during recovery.

Many other cases of sickness were brought, as ague and enlarged spleen, natives came asking for quinine, also many cases of goître, which were generally found in connection with intermittent fever, in one of these the bronchocele measured twenty-eight inches in circumference at its largest part; I was obliged to send all these away unattended to, as the Rana would not assist, and my own private supply of medicines and instruments were adapted to the treatment of eye affections only.

Amongst all the cases operated on there was a comparatively less tendency to suppuration, a quicker healing of wounds, and altogether a much greater stamina and recuperative power amongst these hill men than amongst the people in the plains; antiseptics were not as necessary as in the cases met with at Umballa, they were living under different circumstances in the free mountain air.

A child, aged 5½ years, came with glioma, which just protruded through the ocular coats, there was not much benefit to be expected from interference at that period, but as the pain was very severe, and hæmorrhages occurred occasionally, I removed the globe, and provided the mother with a sedative for the child, more with a view to "euthanasia" than anything else that could be hoped for.

Such cases as ulceration of the cornea and pannus with granular lids now disappeared almost completely, I seldom found them amongst the hill men.

There were several cases of glaucoma; some of optic atrophy; retinitis; and one of embolism of the central artery of the retina.

The hill men are liable to serious accidents incidental to the conditions under which they work, for instance, a man engaged in cutting wood was greatly mauled about the head and face by a bear, it happened about fifty miles from Solon at a place where he was engaged in cutting wood for building purposes. He was brought in on June 19th, four days after the accident, the scalp had been almost completely torn from the left side of his head, together with the greater part of the corresponding ear; fortunately his friends had washed the portion of scalp which had been hanging loose, and re-applied it to the head rather unevenly, but still very fairly, and having secured it by means of the turban which was wound round his head, good union had taken place, leaving a large interval, however, along the vertex; one of the animals claws had struck the centre of the left brow, then passed down through the eye carrying it away, and down the left cheek in front of the malar bone, past the angle of the mouth, its course being marked by a deep wound; a second claw had engaged the inner angle of the right brow, and then passed down cutting through the upper and lower lid about the centre, but fortunately not interfering with the globe; the palpebral aperture presented a quadrangular appearance, the edges of the wounds were only partially cicatrised.

Cleaning the surfaces I brought the edges together with sutures, making a tolerably good job of the lids of the right eye, and removing the remains of the left globe, dusted iodoform into the socket, then bringing the edges of the wound in the brow together, as well as

of that in the face, held them in position with long strips of plaster and ligatures, applying boracic acid dressing; the case turned out much better than expected.

On July 22nd, a native was brought in who had been thrown down a precipice whilst attempting to pass a cow, already in occupation of a narrow path; he fell on the right side of his head and fractured his skull. When he was brought in on the fourth day after the accident, I found a large scalp wound, and a circular piece of bone as large as a five-shilling piece, driven in slightly above and behind the right ear, pressing on the brain; he had had no food since the accident, and was very weak; he squinted with both eyes strongly to the right, in which direction they were fixed immovably, he spoke with difficulty and very indistinctly.

It was necessary to remove a portion of the sound bone with a trephine, before an elevator could be inserted to raise the depressed portion. After removal of all fragments and cleaning the wound, I brought the edges together as well as possible, applying antiseptic dressings.

Next day, 23rd.—The squint had disappeared, the eyes were freely movable in every direction, he spoke well, and was able to take food well also. During that day and the next, however, his temperature rose, and reached 102° on 25th in the morning, he had been delirious during the night, and very restless; inflammation of the membranes of the brain came on and he died on 27th.

The following is a curious instance of the extraordinary apathy of the native character, as well as their ideas of

fatalism. In strolling about the hills round Solon, I frequently passed through a small village at the foot of the Krol mountain, and generally saw a man of about fifty years of age, sitting basking in the sun at the door of one of the low dwellings; he had double cataract, and had been blind for eight years. I asked his friends to bring him into Solon, a distance of barely two miles, and I would try and restore his sight; they promised to bring him in, still he did not come although there were plenty of people to lead him.

I often went to this village on purpose to try and induce his friends to bring him. The man was quite content to live on in a condition which he said had been bestowed upon him by fate, and his friends said they were busy, and did not seem to care to interfere as he was himself so contented with his lot; finally after going several times without success I offered a bribe of Rs. 4 if they would bring him; they asked me when I would pay the money, and wanted it all paid down at once; they also wanted to know how soon he would be cured; at last they promised to bring him on the following day, provided he was cured within a week; I was to give Rs. 1 on his arrival, and four annas a day whilst he remained under my care, during which time one of his friends should remain with him as an attendant. He came according to engagement, I extracted both lenses, fortunately the result was satisfactory, and on the 8th day he went home without assistance. He was to be seen subsequently driving cattle or tilling the fields.

A very curious custom prevailed amongst the hill people

round Solon, which was quite new to me; one day whilst walking through a glen, along the edge of a beautifully cool, well-shaded stream I arrived at a point where it diverged from my path, from this spot a small rivulet had been artificially conducted, still following the narrow track, which continued down the glen.

At some distance in front I saw an object, which appeared at first sight to be a bundle of clothes, such as the natives in the hills generally carry as bedding; on nearer approach it turned out to be the figure of a little child, under three years of age, which, enveloped in clothing, had been placed there, with its head in close contact with the bank of the little rill, from which, by means of a piece of hollow bamboo two or three inches long, a jet of water was carried, falling upon the vertex in a soft, cool stream.

The child lay wrapped up in its blanket, in a most delicious sleep, nothing but the top of the head visible; it struck me as being not a little singular to find a young child left thus alone, in a gloomy silent glen, and placed at the river's brink; accordingly I stopped, and like the sister in the case of Moses waited to wit what would happen. Remaining for some time, not a sound was to be heard, save that of the small stream tumbling, and splashing over rocks in its course down the glen, which stretched far below, becoming more shady and more thickly wooded as it grew deeper; finally having thus for a while played the part of watcher, ascribed to Miriam at that period of her history, I went on, leaving the child asleep.

Still following the rivulet, a little farther on, I came upon several small water courses, which had branched off

from the parent stream at another place, and some half dozen little terraces, cut in the side of the hill, to all of which the water was laid on, each water course being supplied at intervals as it passed the terraces, with pieces of bamboo, through which small jets of water were carried over the vertices of some fifteen or more persons of various ages and of both sexes all lying with their heads close to the water rolled up in blankets, and fast asleep; I had to pick my steps through some half dozen who lay right in my path.

I passed on without waking any of them, and as I continued my course down the glen, found several others under shady trees, and overhanging rocks as they occurred in the course of the different rivulets, each lying in sound sleep, cool water escaping over the crown of the head, which alone was visible, the body and face being covered with a blanket.

I could not avoid thinking the sensation of going to sleep under such circumstances must be very delightful, if one had only one's face free and uncovered.

This hydropathic establishment was most complete, there were instances where the bamboos admitted of a larger stream of water, or in which the jet fell from a greater height, or with greater force, probably to suit the different ages and requirements, in each case the arrangements were perfect, as regards the terraced platform on which the people lay, being kept thoroughly dry; and for the surplus water being delivered away after it had passed over the heads of the prostrate forms.

I came upon this scene during the hottest part of the

day, and remained a spectator for a considerable time, during which some of the sleepers awoke, got up, and went away, whilst others came, and taking their place lay down comfortably, and went to sleep in turn.

It is a custom amongst the hill men and women about this locality, to take their mid-day siesta in this manner, and also for mothers to place their young and fretful children, at some time of the day, to sleep thus, with water pouring over the head, and particularly whilst they are engaged themselves in work in the fields, or at home; a very good and practically sound idea, too to be recommended to mothers infinitely before Mrs. Winslow's soothing syrup, and to my mind when it can be accomplished, superior to a "*Creche.*"

About the middle of October, I returned to Umballa with the Leinster regiment, and was again attached to the station hospital there for the winter.

Persons visiting the district lying north of Umballa, towards the hills, cannot but be struck with the numerous cases of goître, which are met with amongst both men and women. In this respect, however, the Umballa division is not by any means peculiar, as goître is exceedingly common in many places in India, non-professional friends will point to these cases as examples illustrative of the baneful effects of drinking snow water; one looks in vain all around for snow within any reasonable distance.

In the majority of cases the persons affected, and their parents probably, have all their lives dwelt in valleys, between the hills forming the outer ranges of the Himalayas, on the summit of which snow seldom falls, or lasts

a few days only, or which possibly receive a water supply from an area which is never visited by snow.

That bronchocele is not due to this cause is probably unquestioned now-a-days; if an example of goître at home is required, one will look for it in the magnesian limestone district in Derbyshire, or going further a-field a little, you will expect to find the affection in similar soils possibly, in Savoy, the Black Forest, or the Alps of Northern Italy.

In some parts of Bengal, goître exists to a great extent, and forms a very high percentage amongst cases of disease treated; it has been already mentioned that at Daramsalla, at the head of the Kangra valley in the Punjab, over thirteen per cent. of all the cases treated at the dispensary, during the five years ending 1873, were goître. Daramsalla is close under a high peak, which is covered by snow during the greater part of the year, but in other places, as in Lower Bengal, goître is found to an equal or greater extent; *ex. gr.*, twelve per cent. at Mymensingh, which is distant 150 miles or over, from the Himalayas; in other places it rises to fifteen per cent., twenty per cent., thirty per cent., and even to fifty-seven per cent. of the cases treated.

In these cases, the snow theory failing, one looks for the cause in the geological formation, but here again one is confronted by the fact that the water used by the natives does not contain lime in a quantity such as might be expected to produce goître to this extent, and that in some instances there is exceedingly little lime and magnesia present, further an examination of the result of water

analyses which were carried out on an extensive scale in Bengal, in 1867-1870, with a view of determining the amount of lime and magnesia in the water of goîtrous districts, will disprove the view that an excessive quantity of these salts in potable water, is the efficient cause of the disease.

In some cases it was found that goître was very common in villages of some districts where the water used was comparatively soft, while in the villages of other adjoining districts, the inhabitants of which were unaffected, the waters contained more lime and magnesia, than in those where the disease was common, and whilst it is found that goître is prevalent in some of the valleys where the water is very hard, as in Dehra Doon, yet in the neighbouring valleys of Kumaon, and Gurwhal, where the disease is even more common, the water has been found to be fairly soft, further a curious fact is stated, that in Dehra itself, prisoners confined to the jail, get rid of their goître without treatment, though they must drink a water, which even after boiling, in a laboratory, still remains very hard.

In his book on "Climate and Medical Topography in its relation to Disease distribution of the Himalayan and Sub-Himalayan Districts," published in 1880, Dr. F. N. Macnamara, of the Indian Medical Service, has brought forward a great deal to show, that the lime and magnesia in no way account for the prevalence of goître in the localities where it prevails; on the contrary, taking the geographical distribution of this affection, he shows how dependent it is upon malaria, and that goîtrous localities are, beyond all others, notoriously malarious; that it is

specially prevalent in low marshy tracts along the banks of rivers, and in the valleys of mountainous districts; that the tumour most commonly appears, or enlarges, during or shortly after the rains, at a time when fever prevails, and is found on every soil, irrespective of its geological character, in various parts of the plains, and from one end to the other of the Himalayas; in addition that there are two well marked centres of the disease, the larger lying between the "Gogra" and "Brahmapootra," rivers in the East, the smaller along the course of the Chenab river towards the West, as far South as Moultan; these tracts being noted for the prevalence of malaria, and diseases due to malaria, amongst them goître.

In the small district of "Munee Majra," 6045 inhabitants, not far from Umballa, about twenty miles from the foot of the hills, goître is common; the land lies low, and is constantly under irrigation, the soil is alluvial, and becomes water-logged, owing to an excess of water being diverted from the river "Guggur", which runs through it; fever is very prevalent during the rains, also enlargement of the spleen, and at one time as many as six per cent. of the cases had goître as well.

When the irrigation from the "Guggur" ceased so as to admit of the surplus water escaping from the soil, the goître decreased; in other villages in this district the connection between malarious fever, with enlarged spleen and goître was well-marked. "Fever, tumid abdomen, enlarged spleen and goître," commonly being found to co-exist, and were proved to be dependent on the artificial conversion of this portion of the district into a swamp;

wherever water for irrigation purposes was carried over the land in excess of its requirements, where under the conditions of a stiff retentive soil, containing vegetable matter in large proportion together with a low position, a canal was made impeding the natural drainage of the country, the district became water-logged; and during the rains, fever, enlarged spleen, and goître, became common affections.

These are the conditions under which as is well known "malaria" arises, which used to be called "marsh miasm," and which is simply an expressive term for pollution of air, or air and water, a poison as specific as that of small-pox or typhoid, which can be disseminated through the medium of air and water, which is generated in a soil under the circumstances above mentioned, which affects men and animals; both which may lie dormant in the system for a considerable length of time, without the person being aware of the fact, till probably some change of temperature, exposure to a draft of cold air, or some such circumstance excites it into increased action.

A poison which may express itself simply by an occasional neuralgia or general malaise, pallor of countenance, or impaired digestion on the one hand, or possibly in slight attacks of ague of short duration; or on the other in fevers of the most serious type, sudden in their onset and as rapid in their course as they are fatal in their termination; a poison which having once found a firm footing is most difficult to eradicate, lasting in some cases for years after the person has left the district in which he became exposed to the influence, affecting and in

some cases very seriously complicating, the course of future illnesses he may suffer from; which will be found to underlie the majority of the affections which have to be treated in India, whether amongst Europeans or Natives, and is the commonest of all; which demands unceasing care and attention, on the part of every officer in medical charge of troops, and which, amongst the native population of Bengal, sometimes makes its appearance in epidemics of the most severe and wide spreading form, even equalling cholera in the extent of its ravages, falling short of that disease only in the fact of the majority of cases being attended by symptoms, which in their degree are of a less alarming and less agonising nature.

There is no country in which an officer of the medical service of the army is called upon to serve, where he will encounter disease on the scale it occurs in India.

Any one wishing to take a comprehensive view of this fact, need only turn to the volumes of Bryden's *Vital Statistics of India*, where he will find plenty of matter for instruction and reflection.

There is on record an account of an epidemic of malarious fever, which occurred in the Punjab and Central India in 1869 and 1870; the dates of the commencement of this epidemic, as well as its termination were clearly marked. In some places the epidemic commenced on or about August 10th. Dr. Bryden came to the conclusion, that in the week ending August 13th, one common influence prevailed, which in every station included in the area, caused the development of fever among the inhabitants; this influence gained its maximum in October, and

prevailed till the middle of November; during the five months July to November 141,189 deaths from fever occurred amongst the civil native population of the Punjab.

These figures which refer only to British India, and do not include feudatory states, may at first sight seem very large, they must be accepted in connection with the population of the Punjab, which amounts to over 17,600,000; however, to bring the case more within the limits of comprehension; in two divisions of the province, namely Umballa and Umritsur, the one with a population of over 2,743,000, the other over 1,600,000, there were in the case of the former 4,800 deaths from fever, in the latter 8,670 during the same period.

All the authorities agreed that the disease was malarious fever, and it is the rule in the Punjab, that annually at the change of season, in the autumn, intermittent fever prevails, in both Europeans and Natives; the native civil community however suffer most; poverty, bad food, want of appropriate hospital treatment, and everything needed by the sick, helping largely to make up the difference.

With a view to tracing the origin of this epidemic to a cause, leading to an unusually luxuriant crop of fever germs having become developed by changes in air and soil, statistics on the subject of temperature, and rainfall in 1869 and 1870, were compared with those of previous years, but without results.

During November, 1883, a charitable dispensary, containing a number of beds for the reception of native sick, was opened at Umballa, under the charge of the Staff Surgeon; and as such cases as I had been hitherto deal-

ing with could manifestly be treated in a well managed hospital, under more favourable conditions, than could be offered them as the result of private enterprise, all that came to me were sent on to this institution.

In the meantime I had been given the charge of the Hill Station of Chakratta, in the North West Provinces, for the following year, and as I had not had leave of absence for sixteen months, which was quite against my principles, I asked for twenty days towards the end of December, with the intention of visiting the Western Doon.

This part of the Doon Valley is exceedingly lovely, and possesses great attraction for a sportsman, being celebrated as a fishing and shooting ground; the rivers debouching from the hills at this point, and running through the district, more especially the Jumna and its tributaries, being full of "Mahseer," it lies just under the Chakratta hills. My main object in going there was to try and induce persons suffering from eye affections in the neighbourhood, to come up to Chakratta during the following season.

Accordingly I sent my camel, tents and servants ahead on the 20th to Jagadri, forty miles down the railway line, following myself on the 23rd, and taking with me the paraphernalia, instruments, choloroform, antiseptics, etc. necessary for operating; in fine my portable hospital.

I found that the city, where my camel and servants were sent was some distance from the station, so I hired an "ekka" and drove in it to where they were. An "ekka is a peculiarly shaped, one-horsed, or I should say, a one ponied vehicle, a sort of "Jingling Johnnie," only mor so, and without springs.

To persons who have been in India, nothing savouring of novelty would be in the statement, that a drive in an "ekka," constructed by even the best maker, and over the smoothest road, is attended with very mixed feelings, amongst them the sensation of comfort not being supreme; the great difficulty to be encountered after one has succeeded in finding a tolerably easy position, is the disposal of one's legs, which should be doubled up under, in tailor fashion. As mine are not of an inordinate length I found no difficulty about it.

To a sportsman in the plains of India an "ekka" is a most useful vehicle, one that can be had at every railway station, so that it is possible to travel up and down the line during the winter, to the several snipe resorts, and always find means of carriage.

From Jagadri I went to Bilaspoor, ten miles further on on the 24th; on my arrival I sent into the town to have all the blind persons that could be found collected and brought to my camp; the messenger did not prosecute his search to my entire satisfaction, so I went myself, and soon collected a number, from whom I selected six suffering from cataract.

I induced these six to accompany me on the following day (the 25th) to Sadaurah, some twelve miles further, where I intended to remain for several days; they made no objection to come when they heard they were to be driven in a bullock cart, which I hired for the purpose, and that my object was to "make their eyes."

At Sadaurah I used the police rest house, by permission of the superintendent of police, and turned my tents

to hospital purposes, supplemented by the prisoner's room in the police station opposite, which happened to be empty. The police constable at this place was a most energetic person. As soon as he became aware of my object he sent a crier round the city, which contained over 11,000 inhabitants, and on that evening and the following morning a great number of blind, and people with a variety of eye affections and other ailments, collected at the rest house.

I remained here for ten days, using an out-house as an operating room. My Cabul tent was used for ophthalmoscopic purposes. I seated myself daily under a shady tree, examining the various cases that came out of the adjoining city. They sat around at a respectable distance; whilst being called up one by one. Occasionally they became impatient, and three or four would come up at a time, or a general forward movement would take place in my direction. More than once the police constable had to intervene to preserve order, and finally I was obliged to barricade and fortify my position by means of boxes, and other things, leaving a passage for ingress and egress.

As an operating couch, the only available native cot was obtained from the bazaar, and with my two trained servants, assisted by a syce and camel man, both impressed for the occasion, I commenced operations, beginning with the six cataract cases from Bilaspoor. They were all quite successful, and on the eighth day went home unassisted.

I made ten extractions on the 26th.

A difficulty occurred at the outset, as regards the

management of the cases whilst still under the influence of chloroform after the operation; as soon as this was completed, the person had to be removed from the operating theatre, to make room for the next in succession, for whom the cot was required, till he was similarly disposed of.

No such thing here in the jungle as touching an electric bell, followed by the entrance of a trained attendant to remove the patient on a wheeled couch, replacing it by another: If I had waited till each person recovered, and removed himself, I would never get through the work; accordingly at the conclusion of the operation when the bandages were applied, the individual was carried outside, and placed on the ground under a tree, in charge of a relative or friend, till the anæsthetic passed off.

In this manner there were during the forenoon, laid out under the trees around, at one time side by side, fifteen cases in all stages of recovery from chloroform, ten after extraction of cataract, and the remainder after iridectomy or other operations.

As I was completing the last case, my screw top speculum gave way at the point of insertion of one of the pins, to which the expanding lever was attached, however, a native silversmith was soon procured from the bazaar, who in a few minutes spliced it with a copper stay, binding it with silver wire, so that it was quite ready for the following day.

The usual description of cases, chronic conjunctivitis, trachoma, pannus, leucoma, etc., etc., presented in great abundance, besides many well marked instances of disease

of the fundus of the eye; some that were not at the time fit for operation, promised to come to Chakratta during the summer, and a good many were sent into Umballa to Staff Surgeon Dr. O'Connell, who had charge of the charitable dispensary.

The work was not only extremely interesting, but exciting, being carried on under novel and unusual circumstances; I could not help being amused on surveying the prostrate forms with bandaged faces, and the crowd of expectant natives all around, who applauded as each case was carried out and deposited on the ground; being specially loud in their acclamations when a lens was given them for inspection after its removal.

By way of adding to their confidence, each lens was placed on a piece of paper on removal, and sent out to the anxious relatives, by whom it was carefully treasured, after having been passed round for the inspection of the general public.

A serious old Hindoo expressed his delight, astonishment, and unbounded gratitude, when he found placed in his hands, the white object which for years past he had seen in his wife's eye, and which he knew to be the cause of her blindness, he prayed that I might speedily become a Lord, and finally a God.

I was kept busily employed till four p.m., when I had something to eat, and taking my two black and tan terriers with me, went for a ride on my camel across the maidan, whilst the dogs gave chase to antelope; there were numbers feeding on the green wheat crops; as soon as one was sighted we gave chase, of course the antelope

in a few bounds distanced his pursuers, and after running half a mile or so, turned round to stare at us, then went on quitely feeding again; however, the little dogs chased them in a very plucky manner, till they were too pumped to move.

On 27th, I made thirteen extractions; just as the corneal section in the second case was completed, I became painfully aware of the fact, that the individual who was being operated upon, had ceased to breathe. I always had the abdomen exposed to view, as giving the most certain indication of the state of the respiratory movements.

Motion ceased at the epigastrium, which was depressed and flaccid, the pulse ceased, the jaw fell, the lips blanched, the death of the patient seemed imminent.

The state of the unhappy relatives in such an event; a magisterial enquiry, police investigations, and all sorts of things, flashed through my mind; in addition most likely a general stampede of the frightened spectators. There was no time for delay; seated at the head of the cot I was able at once, and without change of position, to seize both the patient's arms above the elbows, and draw them forcibly towards his head, then returning them by his side, press firmly against his ribs, whilst one of my servants who had helped at a previous similar case, made due pressure on the epigastrium, this operation we carried on energetically, according to the Sylvester method, for about ten minutes, whilst the perspiration rolled off my forehead; finally to my relief, breathing became gradually re-established; when he was sufficiently restored, the lens was extracted, and the operation completed satisfactorily.

On 28th, I did twelve extractions, making altogether thirty-five in the three days; on this day I had been busy from nine a.m. till between three and four p.m., and was going for a ride as usual, as much to get away from the people who would not leave if possible till something was done for them, as for any other reason; when leaving my camp a native approached with profuse salutations, saying that I had done his brother much benefit by an operation, that I was the "benefactor of the poor," besides being celebrated in many other ways, and was in addition, what he called his "*ma bap*," which being interpreted meant that on me devolved the twofold responsibility of being his father and mother.

I quite understood the legal meaning of the term *in loco parentis*, but in this instance the pleasure was as unexpected as it was unlooked for; having satisfied himself as regards the relationship, he proceeded to offer me for sale the carcase of a "first class" sheep, as he termed it; in the distance it certainly looked fine and fat, and equally as good as one I had seen in the club larder at Umballa a few days before, intended for the Christmas dinner of the members, which I knew cost twelve rupees; this was offered to me for ten so I purchased it; my friend was to call the following day for payment.

Next morning on going out, the first object which caught my eye was this fine mutton hanging in the verandah, and calling up my cook, I proceeded to show him the joint he should cook for dinner.

I happened to seize between my fingers a piece of skin

with the hair attached to it, which still remained on the joint of one of the forearms, and was surprised to find that it came away on being touched; the same thing happened in the case of the opposite side; this was very curious, and made me suspicious as to the nature of my purchase.

A consultation was now held, at which the most experienced of my servants assisted, the general conclusion arrived at being, that this "very fine mutton" had never been a sheep; that the carcase was that of a goat, and as my old bearer said, one that was very long in the tooth; the case was one of deliberate attempt to impose.

Incensed by such treatment at the hands of an unexpectedly jocative Mussulman, I called in the aid of the police; the bazaar was searched, and his shop was discovered but not the delinquent himself; he had just gone, so his relatives stated, to a distant village to be present at the funeral obsequies of his mother.

Armed with the authority of the civil power, who declared the goat forfeited as a punishment, I distributed it amongst my camp followers, giving them a good feast at the expense of the butcher, who in all probability was looking on from a safe distance.

Had time been at my disposal I could have gone on operating for cataract and other affections apparently for days. There were numbers of cases of all sorts which admitted of operation; however, leave of absence like everything else comes to an end, and it would have been necessary on my departure to leave some of them behind before a cure was completed, consequently to my regret,

I had to send away very many persons suffering from cataract, who came during the time I remained at Sadaurah, waiting to look after and ascertain the result in the thirty-five cases operated on.

There was plenty to do, however, with others who were differently affected, and I believe I fall within the limit in stating, that not less than a couple of hundred people of various ages came daily from the city, and from the surrounding country, presenting a great variety of affections, amongst them some extremely interesting ophthalmoscopic cases.

Amongst the cases operated on were—

Males	20
Females	15
Total	35
Failures from suppuration . .	3

It was not possible to test each of these cases accurately as to their acuteness of vision, the appliances were not at hand; but with the aid of cataract glasses, the women could see to sew, and persons who were sufficiently educated could read their native print or characters; the others could distinguish variously shaped printed objects, and carry on their work as agricultural labourers.

It might be supposed that Sadaurah was a sort of blind asylum, there seemed to be such a perfect nest of persons either blind, or affected with some form of eye affection, and it may be a matter of surprise that so many could be collected at any given point in such a short space of time, unless notice had been sent beforehand.

This remark, however, would have applied equally well to any native city in any part of the Umballa division, I believe, and as much to the city of Umballa, and the large native town in the adjoining cantonments, as to the surrounding district.

Under these circumstances, the questions naturally suggest themselves:—Are eye affections generally of more common occurrence in India, in proportion to other diseases than at home? Secondly, is cataract present in a greater number of such cases, than it is in England, or other cold climate?

As regards the first, and speaking only of the particular district alluded to, I would say that affections of the superficial structures, cornea and conjunctiva, were met with by me in a proportionately much higher ratio than I would expect to find them in England, and that, fever excepted, the percentage of persons suffering from various ocular diseases, seemed higher than that of any other class.

The same increased proportion would no doubt be found in a similar community in any climate, where the inhabitants are exposed to dust and glare, with often hot strong winds, combined with great and sudden changes of temperature, living also, as do Hindoo and Mussulman alike, in overcrowded, badly ventilated, generally speaking insanitary dwellings; but more especially in a race so bigoted, so tied down by caste prejudices, and of habit of body so apathetic; leading in the majority of cases to neglect of an affection, which, if taken in hand in its initial stage, would be easily manageable, but which soon in such a climate becomes often quite irremediable.

Respecting the second question, I would say, that cataract does not bear a higher proportion, either to affections of the eye generally, or to other affections from which natives in India suffer, than the same would to those or other affections which are common at home, or in a colder climate. The apparent preponderance is due, in most instances, to an accumulation of persons thus affected; the larger the population of any part of a district, the greater the accumulation.

The natives who came under me, were not from the immediate vicinity only; many of them came from places in the district; these on returning home made known the fact of their cure, and sent others from their own, or other villages through which they passed on their way. In this manner persons came long distances to be cured of cataract, when probably they would not go half a mile to get relief from a nebulous cornea, as long as they could see to do any work.

Statistical returns of 1877-78, show that the Umballa district occupies an area of over 2,600 square miles, having a population per square mile of 394 individuals; there are besides, 2,324 villages, and 27 chief towns; the six most important of the latter having between them a population of over 96,000 (the largest Umballa has 26,258, the smallest Sadaurah, 11,167); the total population of the district being 1,035,488.

In a native population of such dimensions, it cannot happen otherwise than that a person looking for disease, of almost any description, must surely find it.

I left Sadaurah on the fourth of January, intending to

cross the Siwalik hills at Nahan and get into the Doon, going as far as the Jumna; this, however, did not come off, as my cook, who I believe had been in league with the Mussulman butcher, in the matter of the goat, and who expressed a greater preference for the "flesh pots of Egypt," and the attractions of the bazaars, than the peripatetic sort of life he was now leading, refused to go further. I was obliged to discharge him on the spot, and whilst at Nahan lived in the bungalow which has been built there for the convenience of European visitors.

Nahan is the capital of Sirmur, a small feudatory state included in the Punjab; the Sovereign is styled "Rajah"; he owns an area of 1,045 square miles of mostly mountainous country; he has an estimated revenue of 2,10,000 rupees. The population of the state is 112,400; he has forces to the extent of 100 cavalry, over 500 infantry, and ten guns. The general elevation of the district is about 2,000 feet. The Siwaliks which form one of the boundaries, are rich in fossil remains of large vertebrate animals; herds of wild elephants roam about; tigers, bears, leopards and hyænas abound; copper, lead, and iron, are obtainable in small quantities, and extensive salt quarries exist.

On the Himalayan side, the mountains rise to a considerable height, the principal peak being the Chor, 12,000 feet, the summit of which is composed of huge tabular masses of granite. Snow is found in the crevices all through the summer, the sides are clothed with deodars, rhododendrons, and ferns.

The Rajah, though of much less importance than the

ruler of Cashmere, is much further advanced in civilisation. In addition to having an extensive foundry and resident engineer—an Englishman; he also has a private physician, to whom he pays four hundred rupees a month. There is a good dispensary, fairly supplied with instruments and drugs. The resident medical man had recently died, and at this time, there was no one to do his work but a native assistant surgeon. He collected some cases of various descriptions, amongst them goître, which he treated by the inunction of biniodide of mercury, with subsequent exposure to the sun; some had evidently derived much benefit from this plan.

He said goître was very prevalent amongst persons inhabiting the valleys of the neighbouring hills, combined with malarious diseases and enlargement of the spleen, the worst subjects being females of a scrofulous habit; vesical calculi, tubercular diseases, rheumatism and small-pox were also common. A few cases of cataract came in from the city of Nahan, for which I performed extraction, leaving them under his care on my departure. He said he could procure many more, if I could wait, but I had to return to my station.

Under ordinary circumstances, the garrison in Umballa consisted of three batteries of R.H.A.; a regiment of European Cavalry, and of Native Cavalry; a regiment of European and of Native Infantry. During the winter of 1883-84, the strength was increased by the arrival of two additional infantry regiments, and a battery of artillery, for the cold weather manœuvres; being in addition the centre of the district, which had nine military out-stations,

regiments were constantly passing through from one place to another, or halting as they passed up or down to stations in other divisions. The invalids of the division also collected here previous to being sent down to Bombay, *en route* to England.

There was a very large hospital for the sick of the European troops, in which interesting cases were always to be found; a day seldom passed in which the Brigade-Surgeon in charge had not some case of importance to to communicate to the medical staff; sometimes an unusual complication arising in the course of typhoid fever, or possibly a severe pneumonia, or obscure hepatic affection, perhaps requiring an exploration for pus, or aspiration, or vent by free incision; occasionally severe accidents occurred on the field, by a man falling from his horse, or being run over by the wheel of a gun carriage.

From amongst those that came under my immediate care or observation, during the time I was at Umballa, I mention the following, which are interesting, and of practical importance.

March 1882, No. 874, private G. G——, 9th regiment, had been in hospital at Cabul in 1880, with great pain, swelling, and protrusion of the left eye, this lasted for about ten days, and then subsided, leaving the sight of this eye very obscure, vision gradually became worse, and finally extinct.

When he came to hospital at Umballa there was still a noticeable prominence of the left globe, the eye was quite blind; ophthalmoscopic examination showed well-marked atrophy of the disc, with vessels much reduced in size; the

cause was not quite clear, but from his account of the symptoms it was most likely one of *retro-bulbar* neuritis.

February 1883, Corporal S——, King's Own Borderers. About a year previously he had suffered from severe neuralgia of the fifth nerve, affecting the right side of the head and face, which lasted off and on for a month; sight was much affected in this eye at the time, and after the neuralgia ceased he found that he could with difficulty see the target at the rifle ground. He came to hospital for the purpose of getting a certificate authorising him to fire from the left shoulder.

Examined with the ophthalmoscope, he was found to have advanced atrophy of the right disc, and patches of choroidal atrophy on the fundus, his colour vision was very defective, he could with difficulty distinguish Holmgren's wools; bright red was confused with other shades of same colour, rose colour with grey or light brown, green was lost completely; there was a marked sector-like defect in the lower and outer quadrant of the right visual field, when taken with a perimeter. This was no doubt a case of nerve atrophy following severe neuralgia.

November 1883, private J. M——, Second Surrey Regiment, a fine young soldier of good muscular development, eighteen months' service; whilst at Sabathoo during the previous summer he was sent to hospital for special examination; he had been made prisoner for neglect of duty, in not challenging as sentry on the previous night; he gave as an excuse that he was night blind, and that he saw very badly after dusk; amongst his comrades his statements were received with suspicion, and he did not

gain credence with his commanding officer, inasmuch as during the bright daylight he had excellent sight, being as the adjutant stated "a first class shot."

The officer in medical charge detecting the cause at once took him into hospital, and he was ultimately sent down to the head quarters of the division, and came before a medical board.

In this case examination showed quantities of black pigment deposited in the usual reticular, bone-corpuscle-like manner at the equator, and towards the periphery in both eyes, considerable pallor of the discs, and reduced retinal vessels.

The perimeter showed his area of vision much reduced in limit concentrically, whilst central vision showed little or no defect, an object moved in any direction from the fixation point became obscured, and soon disappeared from view, leaving nearly two thirds of the field blank; he was in fact as it were, in the position of a person looking through a cylinder. His statements were quite in accordance with the facts observed in well marked *retinitis pigmentosa*, viz., that serious defects in sight may exist, whilst central vision remains excellent in bright daylight.

His father, was he said, nearly blind, and had all his life been night blind, a brother was invalided from India in 1882, for same disease, and a sister suffered in the same manner; in his case the disease was evidently well advanced when he enlisted.

November 1883, private T. W——, æt. 32, King's Own Borderers.

Disease.—Multiple sclerosis of the spinal cord, and optic nerve atrophy.

This man was admitted to hospital for a disease of the nervous system, for which he said he had been twice already under treatment, in 1882 and 1883; his medical history sheet showed two admissions for *paralysis agitans*. The affection had come on about two years before, commencing in the right arm, which became weak and tremulous; the left followed next, the tremulous movements extending to the head and neck.

He described periods of remission during which he could control the motions; on this occasion whilst he lay in his bed, his body was in a state of quiescence, when he stood erect, his head, neck, and the whole of the upper portion of the trunk were in a continual state of tremor, his head nodded incessantly; any attempt to control the movements only caused an aggravation; when he stood at attention he shook all over; voluntary acts, as holding out a hand or foot, at once caused a tremulous motion in the limb; his tongue had a slight tremor when protruded; the muscles of the eye-ball were unaffected, he had neither nystagmus nor diplopia.

He had been a fair writer, but now his writing was read with difficulty, each attempt at a letter breaking off several times, ending either in tremulous disconnected strokes, or forming illegible characters; articulation was slow, hesitating, and indistinct.

There was no actual paralysis, no sign of locomotor ataxy, lightening pains, girdle sensations, gastric crises, loss of knee reflex, etc. He had suffered from neither cholera, shock, nor exposure to sun, however, he had been forty days under treatment for specific disease in 1881.

Ophthalmoscopic examination showed a partially atrophied disc in the right eye, with the vessels much reduced in size, scattered patches of choroidal atrophy, and fine floating opacities in the vitreous, the visual field of the eye showed marked concentric limitation for a white object. The area for green was confined almost to the fixation point, that of red was a little wider.

The left eye did not show any abnormal appearances.

A new arrival in India cannot fail noticing the number of native clerks and writers in government offices, banks, etc., who wear spectacles. The orthodox Baboo, whether of Bengal or Bombay, in addition to being shod with patent leather, having his fat calves incased in long white cotton stockings, and possessing a white cotton umbrella, is as a rule armed with glasses; airy and limited as may be his garments, he does not seem completely qualified for his post until he has become the possessor of spectacles.

In the case of large schools for natives at Umballa and Nahan, where I examined a great number of boys, *myopia* was brought to light more frequently than expected, *hypermetropia* was less common.

As might be supposed *refraction* errors did not readily become manifest in the inhabitants of rural districts; amongst the wealthy land owners, and higher classes of natives, who in the majority of cases have little education, and where *res angusta domi* did not make a trade or occupation a necessity of life, such were seldom met with; the use of spectacles by them could generally be regarded simply as a sign of the *presbyopic* condition of the normal eye.

Similarly amongst native females of all classes, who in the majority of cases are, owing to their peculiar custom and prejudices, debarred from all means of acquiring education, having knowledge of nothing that extends beyond the limit of fire-side gossip, the eye being seldom exposed to strain of any sort, either of a nature liable to induce visual defect, or to call forth any latent tendency thereto, and who in my experience seemed more liable to glaucoma, from whatever cause arising, than men, applications for relief for defect of vision remediable by glasses were extremely rare; whilst writers, artificers, persons much occupied in reading Urdu or other native character, or in fine occupations requiring close inspection, or continued strain on the accommodation, amongst these, errors of refraction were very common.

As far as an opportunity for judging presented, *colour blindness* was not a common affection, the various colours and shades of Holmgren's wools being accurately described; were systematic examination carried out amongst Eurasians and natives, as for instance where employed as railway officials and servants, pointsmen, etc., valuable information might be collected, more especially as regards the question lately raised by German writers, as to the effect the presence in greater or lesser quantity than usual, of dark pigmentation in the fundus of the eye, has upon the individual's capacity for differentiating the shades of the four principal colours.*

* "Bemerkungen über den Farbensinn unter Verschiedenen physiologischen und pathologischen Verhältnissen," von Dr. Ole Bull. V. Graefe's *Archiv fur Ophthalmologie*, Abth. iii., 1883.

Personal experience leads to the belief that Hindoos and Mahomedans have a keen and accurate perception of colours, possibly due in some cases to the universal custom of wearing clothing of various hues; they are thus accustomed from childhood to inspect shades closely, and always blend them most harmoniously.

In January, 1884, I was transferred to the hill station of Chakratta in the N.W.P. Chakratta has been occupied as a station since 1869, it is at an elevation of 7,300 feet, and overlooks the deep valleys of the Jumna and Tons rivers, commanding an extensive view of the snowy ranges of the Himalayas; amongst them stand out prominently the *Jumnotri* peaks 21,000 feet high, from the foot of which issue forth hot springs, the source of the river Jumna; *Gangotri* where from an ice cave at the foot of a snow bed 13,000 feet above sea level, issues the Ganges, to flow for 200 miles through deep valleys and mountain gorges before issuing from the Himalayas at Hurdwar, and thence for 1,400 miles before it falls into the Bay of Bengal.

It is stated that in the district about Chakratta there is an aboriginal tribe, a black and hairy race, little raised above absolute barbarism; when a stranger approaches they flee for refuge, and climb the nearest tree; also that *polyandry* is a universal custom; the latter is a fact, the custom is not limited by any means of this portion of the Himalayas, but no instances of the former came within my personal knowledge.

The climate of Chakratta is good, the cold is severe during January and February, when heavy snow storms, are

frequent; the variations in temperature are very moderate; sickness amongst the troops is small, cases of intermittant fever are common, mostly, however, a re-crudescence of disease contracted elsewhere; in the neighbouring valleys fever and goître are prevalent amongst the native population; speaking generally the inhabitants of the district do not suffer much from disease, affections of the eye are not at all common, only three cases of persons suffering from cataract were brought to me to Chakratta, and owing to the limited accommodation in the bazaar, and dearness of provisions, none came up from the Doon at the foot of the hills.

The following November I was ordered to Muttra, a small station in the plains near Agra, and from thence proceeded to England in February 1885.

Briefly and imperfectly as the circumstances narrated in the foregoing pages have been described from notes made roughly, and at the time, without any very clearly defined object, the intervals occupied in putting them together, have been almost as pleasantly passed as those in which they were originally taken.

In bringing them into some sort of shape, and producing them in their present form, the intention has not been, that—now-a-days superfluous—of offering suggestions as to the advantage of, or necessity for, an acquaintance with the use of an instrument, which is familiar to every student of medicine.

The writings of Dr. Clifford Albutt, Dr. Gowers, and other eminent ophthalmologists, in proof of the value of the use of the ophthalmoscope in medicine are well known.

The fact that all the tissues of the body are represented in the eye, and its accessories; that all pathological alteration, to which those tissues are liable are to be found therein; the facility with which an examination can be conducted with the perfected, and scientifically accurate instruments now constructed; the circumstance of so many diseases affecting those tissues, of so many important affections of the brain and spinal cord, many general diseases, as tuberculosis, anæmia, renal affections, fevers, serious constitutional specific lesions, finding there an expression, even prior to their declaration elsewhere; these facts alone seem to add interest to the study, affording to the student an aid to diagnosis and treatment, unknown to men joining the profession in former years.

During his career an officer in the medical service of the army will not fail to find frequent opportunities for keeping himself conversant with the subject, and should India fall to his lot, he will find there ready at hand, a field for its practice rarely equalled; probably unsurpassed.

69952

Summary of 267 *operations for Cataract during the years* 1882 *and* 1883.

The right eye was operated on in 150 cases.
The left eye was operated on in 117 cases.

Method of Operating.

Graefe's operation, or a modification of it, in 221 cases.

Pagenstecher's operation in 12 cases.

Paracentesis and removal of soft and fluid contents of capsule, in 7 cases.

Flap operation in 2 cases.

Removal of lens through corneal section (Liebrich's method), in 2 cases.

Removal by scoop in 20 cases.

In no case was the "cystotome" or "pricker" used during the operation. Section of the lens capsule was invariably made with the point of the Graefe's knife. In making the corneal section, the point of the knife was passed towards the upper edge of the lens, the capsule was freely divided, the knife was then passed across the front of the iris, to the opposite side of the cornea, which was next transfixed, and the section completed.

This method presents the great advantages, that the section of the lens capsule can be made, whilst the pupil is dilated and the aqueous present, without the danger of the

point of the instrument becoming entangled in the iris, which is very liable to happen, in consequence of the contraction of the iris on the escape of the aqueous, the moment the corneal section is made, and there is not the necessity of using two instruments when one suffices.

The ages ranged from 12 to 77 years.

After-Treatment.

The following is a general outline of the after-treatment:—in every instance boracic acid solution was freely used, eserine and finely-powdered iodoform were dropped into the eye, at the conclusion of the operation; pads of boracic lint and bandages were applied, and the eye remained bandaged for four or five days unless some complication arose in the meantime, requiring their removal.

In about seven days the boracic pads were dispensed with, and light bandages applied; in nine or ten days they were allowed to have their eyes open, but carefully shaded. In cases of threatened purulent discharge, finely-powdered iodoform was freely dusted into the eye once a day or oftener.

To the good effects of iodoform, where there is a tendency to chemosis or suppuration taking place, and to the rapidity with which, under its use, pain and swelling diminish, I can fully testify.

Complications.

In twenty cases, the scoop had to be employed for the removal of the lens in consequence of fluid vitreous;

in six cases, iritis occurred; in thirteen cases, slight escape of vitreous occurred, in some of them without much detriment to vision; in four cases, hæmorrhage occurred into the globe, presumably from diseased vessels.

Failures.

Three cases from deep-seated hæmorrhage into the globe, vessels diseased; four cases from diseased fundus; three cases, occlusion of the pupil caused by iritis subsequent to operation, secondary operation could not be done in these cases as the patients left and did not return; in four cases, the cornea sloughed, from general debility in the subject, in each case the process was perfectly painless and was not discovered until opening the bandage on fourth or fifth day; in one case, the patient interfered with the bandages, sloughing of the corneal section and general opacity of the cornea occurred; in seven cases, chemosis, general inflammation and suppuration of the cornea occurred. Thus making a total of twenty-two failures from all causes.

In twenty-six instances both eyes were operated upon at once; of these, in one case, both eyes were lost, in consequence of sloughing of the cornea from general debility; in three cases, failure resulted in one eye of each from chemosis and sloughing of the cornea; one case, the fundus was extensively diseased. The remaining twenty-one cases recovered with varying amounts of good or useful vision.

Vision

Is that taken with glasses at the date of discharge, the majority of the patients were of a class who were unable

to read, they had fair sight for distant objects, or to enable them to carry on fine occupations with + 10 or + 11 dioptrics.

In cases Nos. 2 and 180, advantage was taken of the clear rim round the central opacity in lamellar cataract, and iridectomy downwards and inwards was performed, resulting in useful vision in right eye. In the left, paracentesis and removal of the soft cortex was practised, with Vision $= \frac{20}{70}$.

In case No. 142, aged 12, congenital cataract of both eyes, being quite blind for seven years, modified linear was performed on the right, paracentesis and removal of the soft contents of capsule, on the left. In this and the preceding case, the retina, as is usually the case, was very deficient in perceptive powers. The last case recovered with useful vision in both eyes. Test-objects, and figures were extemporised, to resemble as closely as possible the type in ordinary use, and which answered for Natives who could not read, almost as well as those of Snellen.

TABLE OF 232 OPERATIONS FOR CATARACT AND RESULTS.

No.	Sex. Age. Date of Operation.	Right or Left.	Method of Operating and Incidents.	Result.	Remarks.
	Jan., 1882.				
1	M. 60	R	Pagenstecher's	V = $\frac{20}{40}$	Severe vomiting after operation.
2	M. 15	R	Lamellar cataract. *Iridectomy.*		Useful vision.
		L	Paracentesis and removal of fluid contents and cortex	V = $\frac{20}{70}$	Congenital weakness of both eyes. Discharged on 10th day.
3	M. 55	R	Modified Graefe	V = $\frac{20}{20}$	Discharged on 17th day.
4	M. 60	R	,,	V = $\frac{20}{100}$	A slight central opacity of cornea interfered with V. Discharged in 18 days.
5	M. 55	R	Modified Graefe Milky cortex, hard nucleus	V = $\frac{20}{30}$	Discharged in 10 days.
6	F. 50	L	Modified Graefe	See remarks	V. imperfect in consequence of opaque capsule partially closing the pupil. Left for home in 10 days.
7	M. 25	L	,,	V = $\frac{20}{30}$	Discharged in 18 days.
8	M. 40	R	,,	V = $\frac{20}{20}$	Discharged in 17 days.
9	M. 38	L	,,	V = $\frac{20}{30}$	Discharged in 15 days.
10	M. 24	R	,,	V = $\frac{20}{20}$	Discharged in 20 days.
11	M. 27	R	,,	V = $\frac{20}{20}$	Discharged in 20 days.
12	F. 45	L	,,	V = $\frac{20}{20}$	Discharged in 15 days.
13	M. 55	R	Modified Graefe and scoop	V = $\frac{20}{30}$	Capsular opacity interfered with V. Left in 20 days.
14	F. 40	L	Modified Graefe	V = $\frac{20}{25}$	Discharged in 15 days.
15	M. 50	R	Modified Graefe and scoop	V = $\frac{20}{30}$	Discharged in 18 days.
16	M. 48	R	Modified Graefe	V not taken	Operation good. Left in 12 days.
17	F. 60	R	Flap	V = $\frac{20}{50}$	Discharged in 18 days.
18	F. 60	L	Modified Graefe	V = $\frac{20}{30}$	Discharged in 15 days.
19	M. 38	R	,,	V = $\frac{20}{25}$	Discharged in 15 days.

No.	Sex. Age. Date of Operation.	Right or Left.	Method of Operating and Incidents.	Result.	Remarks.
	Feb., 1882.				
20	F. 48	R	Modified Graefe and scoop, slight escape of vitreous	V = $\frac{20}{30}$	Discharged in 20 days.
21	M. 50	R	Modified Graefe	V = $\frac{20}{20}$	Discharged in 22 days.
22	F. 45	L	,,	V = $\frac{20}{20}$	Discharged in 18 days.
23	M. 55	R	Modified Graefe and scoop, fluid vitreous	V = $\frac{20}{70}$	Slight opacity of cornea. Discharged in 18 days.
24	M. 40	L	Modified Graefe	V = $\frac{20}{20}$	Discharged in 18 days.
25	M. 50	L	,,	V = $\frac{20}{20}$	Discharged in 18 days.
26	M. 48	R	,,	V = $\frac{20}{20}$	Discharged in 16 days.
27	M. 34	R	,,	V = $\frac{20}{20}$	Discharged in 16 days.
28	M. 35	R	,,	V = $\frac{20}{20}$	Discharged in 25 days.
		L	,,	V = $\frac{20}{30}$	
29	M. 35	L	,,	V = $\frac{20}{20}$	Discharged in 15 days.
	March, 1882.				
30	M. 36	L	,,	V = $\frac{20}{20}$	Discharged in 18 days.
31	M. 50	R	Lens detached at upper $\frac{1}{3}$ of circumference, vitreous fluid, scoop extraction.	V = $\frac{20}{30}$	Discharged in 18 days.
32	F. 40	R	Modified Graefe	V = $\frac{20}{30}$	Discharged in 20 days.
		L	Modified Graefe and scoop	V = $\frac{20}{100}$	Traces of old choroiditis in fundus.
33	M. 45	R	Modified Graefe and scoop, large escape of vitreous. Took chloroform badly	Failure	Probably deep-seated disease of fundus. Had formerly severe pain in globe.
34	M. 46	R	Modified Graefe	V = nil	Hæmorrhage took place into globe and anterior chamber.
35	F. 38	L	,,	V = $\frac{20}{20}$	Discharged in 15 days.
36	M. 48	R	,,	V not taken	Left for home in 7 days.
37	M. 45	R	,,	V = $\frac{20}{20}$	Discharged on 17th day.
38	M. 45	L	,,	V = $\frac{20}{20}$	Discharged in 18 days.
39	M. 50	R	,,	V = $\frac{20}{30}$	Discharged in 18 days.
40	M. 44	R	,,	V = $\frac{20}{25}$	Discharged in 18 days.
41	M. 50	R	,,	V = $\frac{20}{20}$	Discharged in 20 days.
42	M. 48	L	,,	V = $\frac{20}{20}$	Discharged in 18 days.
43	M. 38	L	,,	Failure	Hæmorrhage into globe.
44	F. 40	R	,,	V = $\frac{20}{25}$	Discharged in 25 days.
		L	,,	V = $\frac{20}{50}$	
45	M. 38	R	,,	V = $\frac{20}{30}$	Discharged in 18 days.
46	M. 45	R	,,	V = $\frac{20}{20}$	Discharged in 18 days.

No.	Sex. Age. Date of Operation.	Right or Left.	Method of Operating and Incidents.	Result.	Remarks.
	March, 1882.				
47	M. 14	R	Paracentesis and removal of fluid contents of capsule	V = 20/70	Double coloboma, cataract in right eye, perceptive powers of retina dull.
48	F. 50	R	Modified Graefe	V = 20/20	Discharged in 18 days.
49	F. 25	L	,,	V = 20/30	Discharged in 10 days.
50	F. 38	L	,,	V = 20/20	Discharged in 14 days.
51	M. 40	R	,,	V not taken	Left for his home on 8th day. Operation good.
52	M. 50	R	Lens removed by scoop	V = 20/100	Large escape of vitreous during operation, iritis followed and occlusion of the pupil.
53	M. 38	L	Modified Graefe	V = 20/30	Discharged in 18 days.
54	M. 22	R	,,	V = 20/20	Discharged in 15 days.
55	M. 58	R	,,	V = 20/20	Discharged in 22 days.
		L	,,	V = 20/30	
56	M. 50	L	,,	V = 20/20	Discharged in 18 days.
57	F. 38	R	,,	V = 20/20	Discharged in 16 days.
58	F. 50	R	Modified Graefe and scoop	Failure	Considerable escape of vitreous, iritis, diseased fundus.
59	F. 22	L	Modified Graefe	V = 20/20	Discharged in 15 days.
60	M. 38	R	,,	V = 20/70	Capsular opacity interfered with V. Left in 17 days.
61	M. 50	L	,,	V = 20/20	Discharged in 16 days.
62	M. 55	R	,,	V = 20/30	Discharged in 18 days.
63	M. 65	R	,,	V = 20/40	Discharged in 16 days.
64	M. 48	R	,,	V = 20/60	Discharged in 19 days.
65	F. 58	R	,,	V not taken	Operation good. Left in 10 days.
66	F. 48	R	,,	V = 20/20	Discharged in 25 days.
		L	,,	V = 20/30	
67	M. 40	L	,,	V = 20/30	Discharged in 14 days.
68	M. 48	L	,,	V = 20/60	Discharged in 20 days. Disease of fundus.
69	M. 50	R	,,	V = 20/30	Discharged in 15 days.
70	F. 50	R	,,	V = 20/20	Discharged in 14 days.
71	F. 50	R	,,	V = 20/20	Discharged in 15 days.
72	M. 60	R	,,	V = 20/20	Remains of old choroiditis in L. Discharged in 25 days.
		L	,,	V = 20/60	
73	M. 48	L	,,	V = 20/20	Discharged in 17 days.
74	M. 65	R	,,	V = 20/30	Discharged in 17 days.
75	M. 45	R	,,	V not taken	Operation good. Left in 12 days.

No.	Sex. Age. Date of Operation.	Right or Left.	Method of Operating and Incidents.	Result.	Remarks.
	March, 1882.				
76	M. 38	L	Modified Graefe	V = 20/20	Discharged in 18 days.
77	M. 40	L	,,	V = 20/20	Discharged in 17 days.
78	M. 55	L	,,	V = 20/30	Discharged in 17 days.
79	M. 38	R	Lens black, removed with scoop, slight escape of vitreous	See remarks	Bad double cataract, the left eye no P.L. Useful vision enabling him to make his way about, after extraction of right lens.
80	M. 50	R	Modified Graefe	V = 20/20	Discharged in 18 days.
81	M. 48	R	,,	V = 20/20	Discharged in 18 days.
	Nov., 1882.				
82	F. 26	R	,,	See remarks	Considerable escape of fluid vitreous, chemosis, sloughing of wound, opacity of cornea. V = shadows.
83	M. 68	L	Flap operation	,,	Hæmorrhage during the operation, result as in No. 82.
84	M. 58	L	Flap operation and removal of lens by scoop	,,	Escape of vitreous, chemosis, result the same as in last two cases.
85	M. 45	L	Section made across cornea above upper edge of pupil	V = 20/20	Discharged in 18 days.
86	F. 48	L	Modified Graefe	V = 20/30	Discharged in 15 days.
87	M. 38	R	,,	V = 20/20	Discharged in 12 days.
88	M. 50	L	,,	V = 20/20	Discharged in 18 days.
	Jan., 1883.				
89	M. 40	R	,,	V = 20/20	Discharged in 15 days.
90	M. 50	R	,,	V = 20/20	Discharged in 18 days.
91	M. 50	R	Modified Graefe, fluid vitreous, lens removed by scoop	See remarks	Operation good, fundus diseased. Left in 15 days.
92	M. 40	R	Modified Graefe	V = 20/20	Discharged in 18 days.
93	M. 38	R	Pagenstecher's operation	V = 20/30	Discharged in 19 days.
94	M. 38	R	Modified Graefe	V = 20/20	Discharged in 19 days.
95	M. 60	R	,,	See remarks	Feeble old man. Sloughing of the cornea from bodily weakness. Result failure.
96	M. 40	L	Pagenstecher's operation	V = 20/20	Discharged in 18 days.
97	M. 40	R	Modified Graefe	V = 20/20	Discharged in 15 days.

No.	Sex. Age. Date of Operation.	Right or Left.	Method of Operating and Incidents.	Result.	Remarks.
	Jan., 1883.				
98	M. 50	L	Modified Graefe	V = 20/20	Severe vomiting while under chloroform. Discharged in 18 days.
99	M. 35	R	,,	See remarks	Chemosis, sloughing of wound, opacity of cornea.
100	M. 40	L	,,	V = 20/100	Delayed by iritis. Discharged in 25 days.
101	M. 60	L	,,	See remarks	Operation good, iritis followed with partial occlusion of pupil. Left in 10 days.
102	M. 50	L	,,	,,	Result same as in No. 101.
103	F. 40	L	,,	V = 20/20	Discharged in 18 days.
104	M. 50	R	,,	V = 20/20	Discharged in 15 days.
	Feb., 1883.				
105	M. 55	L	,,	V = 20/20	Discharged in 16 days.
106	M. 58	R	Modified Graefe, slight escape of vitreous	V = 20/40	Opacity of cornea interfered with V, otherwise result satisfactory. Discharged in 20 days.
107	M. 42	L	Modified Graefe	V = 20/20	Discharged in 20 days.
108	M. 35	R	,,	V = 20/20	Discharged in 16 days.
109	M. 40	R	,,	V = 20/20	Discharged in 14 days.
110	F. 45	R	,,	V = 20/20	Discharged in 15 days.
111	M. 44	L	,,	V = 20/20	Discharged in 11 days.
112	M. 55	R	,,	V useful	Capsular opacity subsequently removed by a needle operation and V = 20/30.
113	M. 38	L	Fluid vitreous, lens removed by scoop	V = 15/20	Discharged in 18 days.
114	F. 25	L	Modified Graefe	V = 20/20	Discharged in 12 days.
115	F. 25	R	,,	V = 20/20	Discharged in 15 days.
116	M. 32	L	,,	V = 20/20	Discharged in 15 days.
117	M. 77	L	,,	V = 20/20	Discharged in 22 days. Cure delayed by prolapse of iris, wound slow in healing.
118	M. 55	R	,,	V = 20/20	Discharged in 15 days.
119	M. 70	R	,,	See remarks	Interfered with bandages, very restless, sloughing of edges of wound, chemosis, subsequent sloughing of cornea.

No.	Sex. Age. Date of Operation.	Right or Left.	Method of Operating and Incidents.	Result.	Remarks.
	Feb., 1883.				
120	F. 35	R	Modified Graefe	See remarks	Chemosis, sloughing of cornea, result same as No. 119.
121	F. 48	L	,,	V = 20/20	Discharged in 12 days.
122	F. 60	L	Pagenstecher's operation	V = 20/30	Corneal opacity interfered with V. Discharged in 18 days.
123	M. 75	L	Modified Graefe	V = 20/40	Discharged in 16 days.
124	M. 60	L	,,	V = 20/30	Discharged in 16 days.
125	M. 24	R	,,	V = 20/20	Discharged in 11 days.
126	F. 70	R	,,	V = 20/30	Discharged in 12 days.
127	M. 55	L	,,	V = 20/40	Diseased fundus. Discharged in 18 days.
128	M. 57	L	Modified Graefe, escape of fluid vitreous	V = 20/70	Iris became engaged in cicatrix, pupil drawn up. Discharged in 25 days.
129	M. 40	R	Lens removed by Liebrich's operation	V = 20/20	Discharged in 12 days.
130	M. 40	R	Pagenstecher's operation	See remarks	Iritis and subsequent occlusion of the pupil. Left in 12 days.
131	F. 40	L	Modified Graefe, escape of fluid vitreous	V = 20/60	Discharged in 15 days.
	March, 1883.				
132	F. 25	L	Modified Graefe	V = 20/20	Discharged in 15 days.
133	M. 70	L	Modified Graefe, slight escape of vitreous	V = 20/30	Discharged in 17 days.
134	M. 55	L	Modified Graefe	V = 20/50	Discharged in 15 days.
135	M. 50	L	,,	V = 20/25	Discharged in 18 days.
136	M. 50	R	,,	V = 20/20	
		L	,,	V = 0	Diseased fundus. Discharged in 20 days.
137	M. 45	R	,,	V = 20/20	Discharged in 19 days.
138	M. 50	R	,,	V = 20/20	Discharged in 18 days.
139	M. 50	R	,,	V = 20/30	Discharged in 15 days.
140	M. 25	R	,,	V = 20/30	Discharged in 15 days.
141	M. 60	R	,,	V = 20/40	Discharged in 11 days.
142	F. 12	R	Modified Graefe, capsule tough, cortex soft	V useful	Double congenital cataract, retina defective in perceptive powers.
		L	Paracentesis and removal of soft cortex	,,	Discharged in 12 days.

No.	Sex. Aged. Date of Operation.	Right or Left.	Method of Operating and Incidents.	Result.	Remarks.
	March, 1883.				
143	F. 70	R	Modified Graefe	V = 20/40	Discharged in 14 days.
144	M. 71	R	Pagenstecher's operation, vitreous very fluid	See remarks	Diseased vessels, hæmorrhage into globe and subsequent excision of eye. Discharged in 20 days.
145	M. 60	L	Modified Graefe	V = 20/40	Discharged in 14 days.
146	M. 70	L	,,	See remarks	Chemosis, sloughing of cornea. Discharged in 28 days.
147	M. 60	R	,,	V = 20/30	Discharged in 15 days.
148	M. 60	R	Vitreous fluid, lens removed by scoop	V = 20/70	Discharged in 20 days.
149	M. 57	R	Modified Graefe	V = 20/100	Old choroiditis visible in fundus. Discharged in 18 days.
150	M. 30	R	,,	V = 20/20	Discharged in 12 days.
151	M. 75	R	,,	V = 20/60	Capsular opacity interfered with vision. Left in 10 days.
152	M. 70	L	,,	V = 20/30	Discharged in 15 days.
153	M. 58	R	,,	V = 20/30	Discharged in 14 days.
154	M. 70	R	,,	V = 20/30	Discharged in 14 days.
155	M. 55	R	,,	V = 20/30	Corneal opacity interfered with V. Discharged in 12 days.
156	M. 50	R	,,	V not taken	Left in 10 days.
157	F. 48	R	,,	V = 20/30	Discharged in 15 days.
158	F. 55	R	,,	V = 20/30	Discharged in 10 days.
	April, 1883.				
159	M. 70	R	,,	V = 20/20	Discharged in 10 days.
160	F. 50	R	,,	V not taken	Discharged in 10 days.
161	M. 60	R	,,	V = 20/20	Discharged in 14 days.
162	M. 35	R	,,	V = 20/20	Discharged in 18 days.
163	M. 70	L	,,	V = 20/40	Discharged in 18 days.
164	M. 57	R	,,	V = 20/40	Cortex very fluid, nucleus small.
		L	,,	V = 20/20	Fundus diseased. Discharged in 20 days.
165	M. 60	R	,,	V = 20/20	Discharged in 15 days.
		L	,,	V = 20/20	
166	F. 58	R	,,	V = 20/20	Escape of bead of vitreous, subsequently snipped off with scissors. Discharged in 20 days.
		L	Vitreous fluid, Pagenstecher's operation, lens removed by scoop	V = 20/80	
167	F. 50	R	Modified Graefe	V = 20/20	Discharged in 16 days.

No.	Sex. Age. Date of Operation.	Right or Left.	Method of Operating and Incidents.	Result.	Remarks.
	April, 1883.				
168	M. 60	L	Modified Graefe.	V not taken	Left in 8 days.
169	M. 70	L	,,	See remarks	V interfered with by capsular opacity. Left in 10 days.
170	M. 60	R	,,	,,	Chemosis and sloughing of cornea. Discharged in 25 days.
		L	,,	V=$\frac{20}{20}$	
171	M. 70	R	Modified Graefe, soft cortex round small nucleus	See remarks	Failure. A weak old man, operation followed by sloughing and death of cornea, quite free from pain.
		L	,,	,,	
172	M. 60	R	Modified Graefe	V=$\frac{20}{20}$	Discharged in 20 days.
		L	,,	V=$\frac{20}{40}$	
173	M. 60	R	Nucleus small, lens milky, fluid vitreous, scoop extraction	V=$\frac{20}{30}$	Discharged in 20 days.
		L	,,	V=$\frac{20}{20}$	
174	M. 70	R	Extraction by scoop in capsule, Pagenstecher's operation	V=$\frac{20}{40}$	Discharged in 20 days.
		L	,,	V=$\frac{20}{30}$	
175	M. 50	R	Modified Graefe	V=$\frac{20}{20}$	
		L	,,	Failure	Chemosis and sloughing of cornea.
	June, 1883.				
176	M. 50	R	Modified linear	V good	Discharged in 14 days.
177	M. 50	R	Pagenstecher's	V good	
		L	Modified linear	V dim	Old disease of fundus.
178	F. 55	R	,,	V fair	Lens removed by scoop; slight escape of vitreous.
179	F. 14	R	,,	V not taken	Left for own home on third day.
		L	,,		
180	M. 18	R	Iridectomy downwards and inwards	V=$\frac{20}{80}$	Lamellar cataract; artificial pupil.
		L	Solution and removal of soft cortex	V=$\frac{20}{60}$	Completely soft cataract, iritis followed; vision remained dim.
181	M. 4	R	Modified linear	V=$\frac{20}{30}$	
182	F. 70	L	,,	V good	Slight escape of vitreous.
183	M. 40	R	,,	V=$\frac{20}{30}$	

No.	Sex. Age. Date of Operation.	Right or Left.	Method of Operating and Incidents.	Result.	Remarks.
	June, 1883.				
184	M. 55	L	Pagenstecher's	V dim	Partial luxation of lens previous to operation, lens removed by scoop; old disease of fundus.
185	M. 60	L	Modified linear	Failure	Sloughing of cornea, with complete absence of pain.
186	M. 40	R	,,	V dim	Opaque capsule remained, requiring needling.
187	M. 50	L	,,	V = 1/3	
188	M. 70	L	,,	V = 14/20	
189	F. 12	L	Linear	V = 2/3	Lens ruptured six months previously by a blow. Soft opaque cortical matter half-filled the anterior chamber, and blocked up the pupil; operation done for its removal.
	July, 1883.				
190	F. 70	R	Modified linear	V good	Patient suffered from leprosy, and disease of left fundus.
		L	,,	V dim	
191	M. 55	L	,,	V = 2/3	
192	M. 55	R	,,	V good	Fainted during operation; artificial respiration required.
		L	,,	,,	
193	M. 55	R	,,	V = 20/20	
		L	,,	V = 2/3	
194	M. 40	R	,,	V = 2/3	Iris prolapsed into wound, some had to be snipped off; cure delayed.
195	M. 55	R	,,	V = 20/20	
		L	,,	V = 2/3	Iritis followed in this eye.
196	M. 40	L	,,	V = 2/3	Iris became entangled in cicatrix of cornea, cure delayed by iritis.
197	M. 55	L	,,	V dim	Disease of fundus.
198	F. 60	L	,,	V dim	,,
199	M. 40	R	,,	V = 2/3	Removal of lens by scoop, slight escape of vitreous.
200	M. 40	R	,,	V good	
		L	Pagenstecher's	V good	Lens removed by scoop.

No.	Sex. Age. Date of Operation.	Right or Left.	Method of Operating and Incidents.	Result.	Remarks.
	July, 1883.				
201	F. 55	R	Modified linear	V=$\frac{2}{3}$	Iridectomy not made.
202	M. 65	R	,,	V good	
203	M. 65	L	,,	V good	
204	F. 35	R	,,	V=$\frac{20}{20}$	Severe vomiting during operation.
205	M. 22	R	Solution	V good	Cataract completely soft, opaque fluid let out, and removed through small opening in cornea.
206	M. 65	R	Modified linear	V good	Severe vomiting.

Cataract operations performed in the Umballa district, December 1883—thirty-five: viz., December 26th, 10 cases; December 27th, 13 cases; December 28th, 12 cases. Of these, on the right eye, 17, on the left eye, 18.

The ages varied from 30 to 55.

Failure occurred in two cases from suppuration.

The operation was "Modified Linear."

Good vision resulted in thirty cases.

Making a total of 267 extractions in 241 individuals in eleven working months.

Printed by H. K. Lewis, 136 Gower Street, London, W.C.

CATALOGUE OF WORKS

PUBLISHED BY

H. K. LEWIS

136 GOWER STREET, LONDON, W.C.

G. GRANVILLE BANTOCK, M.D., F.R.C.S. EDIN.
Surgeon to the Samaritan Free Hospital for Women and Children.

I.

ON THE USE AND ABUSE OF PESSARIES. Second Edition, with Illustrations, 8vo, 5s.

II.

A PLEA FOR EARLY OVARIOTOMY. Demy 8vo, 2s.

FANCOURT BARNES, M.D., M.R.C.P.
Physician to the Chelsea Hospital for Women; Obstetric Physician to the Great Northern Hospital, &c.

A GERMAN-ENGLISH DICTIONARY OF WORDS AND TERMS USED IN MEDICINE AND ITS COGNATE SCIENCES. Square 12mo, Roxburgh binding, 9s.

ASHLEY W. BARRETT, M.B. LOND., M.R.C.S., L.D.S.
Dental Surgeon to the London Hospital, &c.

DENTAL SURGERY FOR GENERAL PRACTITIONERS AND STUDENTS OF MEDICINE. With Illustrations, crown 8vo. [*In the press.*

Lewis's Practical Series].

ROBERTS BARTHOLOW, M.A., M.D., LL.D.
Professor of Materia Medica and Therapeutics, in the Jefferson Medical College of Philadelphia, &c., &c.

I.

A TREATISE ON THE PRACTICE OF MEDICINE, FOR THE USE OF STUDENTS AND PRACTITIONERS. Fifth Edition, with Illustrations, large 8vo, 21s. [*Just published.*

II.

A PRACTICAL TREATISE ON MATERIA MEDICA AND THERAPEUTICS. Fifth Edition, Revised and Enlarged, 8vo, 18s. [*Just published.*

GEO. M. BEARD, A.M., M.D.
Fellow of the New York Academy of Medicine; Member of the American Academy of Medicine, &c.
AND
A. D. ROCKWELL, A.M., M.D.
Fellow of the New York Academy of Medicine; Member of the American Academy of Medicine, &c.

A PRACTICAL TREATISE ON THE MEDICAL AND SURGICAL USES OF ELECTRICITY. Including Localized and General Faradization; Localized and Central Galvanization; Franklinization; Electrolysis and Galvano-Cautery. Fourth Edition. With nearly 200 Illustrations, roy. 8vo, 28s. [*Just published.*

A. HUGHES BENNETT, M.D.

Member of the Royal College of Physicians of London; Physician to the Hospital for Epilepsy and Paralysis, Regent's Park, and Assistant Physician to the Westminster Hospital.

A PRACTICAL TREATISE ON ELECTRO-DIAGNOSIS IN DISEASES OF THE NERVOUS-SYSTEM. With Illustrations, 8vo, 8s. 6d.

II.

ILLUSTRATIONS OF THE SUPERFICIAL NERVES AND MUSCLES, WITH THEIR MOTOR POINTS. A knowledge of which is essential in the Art of Electro-Diagnosis. (Extracted from the above). 8vo, paper cover 1s. 6d., cloth 2s.

III.

ON EPILEPSY: ITS NATURE AND TREATMENT. 8vo, 2s. 6d.

DR. THEODOR BILLROTH

Professor of Surgery in Vienna.

GENERAL SURGICAL PATHOLOGY AND THERAPEUTICS: In Fifty-one Lectures. A Text-book for Students and Physicians. With additions by Dr. ALEXANDER VON WINIWARTER, Professor of Surgery in Luttich. Translated from the Fourth German edition with the special permission of the Author, and revised from the Tenth edition, by C. E. HACKLEY, A.M., M.D. Copiously illustrated, 8vo, 18s.

G. H. BRANDT, M.D.

I.

ROYAT (LES BAINS) IN AUVERGNE, ITS MINERAL WATERS AND CLIMATE. With Frontispiece and Map. Second edition, crown 8vo, 2s. 6d;

II.

HAMMAM R'IRHA, ALGIERS. A Winter Health Resort and Mineral Water Cure Combined. With Frontispiece and Map, crown 8vo, 2s. 6d.

GURDON BUCK, M.D.

CONTRIBUTIONS TO REPARATIVE SURGERY; SHOWing its Application to the Treatment of Deformities, produced by Destructive Disease or Injury; Congenital Defects from Arrest or Excess of Development; and Cicatricial Contractions from Burns. Illustrated by numerous Engravings, large 8vo, 9s.

ALFRED H. CARTER, M.D. LOND.

Member of the Royal College of Physicians; Physician to the Queen's Hospital, Birmingham; Examiner in Medicine for the University of Aberdeen, &c.

ELEMENTS OF PRACTICAL MEDICINE. Third Edition, crown 8vo, 9s. [*Now ready.*

P. CAZEAUX.

Adjunct Professor in the Faculty of Medicine of Paris, &c.

AND

S. TARNIER.

Professor of Obstetrics and Diseases of Women and Children in the Faculty of Medicine of Paris.

OBSTETRICS: THE THEORY AND PRACTICE; including the Diseases of Pregnancy and Parturition, Obstetrical Operations, &c. Seventh Edition, edited and revised by ROBERT J. HESS, M.D., with twelve full-page plates, five being coloured, and 165 wood-engravings, 1081 pages, roy. 8vo, 35s. [*Just ready.*

JOHN COCKLE, M.A., M.D.
Physician to the Royal Free Hospital.

ON INTRA-THORACIC CANCER. 8vo, 4s. 6d.

W. H. CORFIELD, M.A., M.D. OXON.
Professor of Hygiene and Public Health in University College, London.

DWELLING HOUSES: Their Sanitary Construction and Arrangements. Second Edition, with Illustrations. *[In the press.*

J. THOMPSON DICKSON, M.A., M.B. CANTAB.
Late Lecturer on Mental Diseases at Guy's Hospital.

THE SCIENCE AND PRACTICE OF MEDICINE IN RELATION TO MIND; the Pathology of the Nerve Centres, and the Jurisprudence of Insanity, being a course of Lectures delivered at Guy's Hospital. Illustrated by Chromo-lithographic Drawings and Physiological Portraits. 8vo, 14s.

HORACE DOBELL, M.D.
Consulting Physician to the Royal Hospital for Diseases of the Chest, &c.

ON DIET AND REGIMEN IN SICKNESS AND HEALTH, and on the Interdependence and Prevention of Diseases and the Diminution of their Fatality. Seventh Edition, 8vo, 10s. 6d.

II.

AFFECTIONS OF THE HEART AND IN ITS NEIGHBOURHOOD. Cases, Aphorisms, and Commentaries. Illustrated by the heliotype process. 8vo, 6s 6d.

JOHN EAGLE.
Member of the Pharmaceutical Society.

A NOTE-BOOK OF SOLUBILITIES. Arranged chiefly for the use of Prescribers and Dispensers. 12mo, 2s. 6d.

JOHN ERIC ERICHSEN.
Holme Professor of Clinical Surgery in University College; Senior Surgeon to University College Hospital, &c.

MODERN SURGERY; Its Progress and Tendencies. Being the Introductory Address delivered at University College at the opening of the Session 1873-74. Demy 8vo, 1s.

DR. FERBER.

MODEL DIAGRAM OF THE ORGANS IN THE THORAX AND UPPER PART OF THE ABDOMEN. With Letter-press Description. In 4to, coloured, 5s.

AUSTIN FLINT, JR., M.D.

Professor of Physiology and Physiological Anatomy in the Bellevue Medical College, New York; attending Physician to the Bellevue Hospital, &c.

I.

A TEXT-BOOK OF HUMAN PHYSIOLOGY; DESIGNED for the Use of Practitioners and Students of Medicine. New edition, Illustrated by plates, and 313 wood engravings, large 8vo, 28s.

II.

THE PHYSIOLOGY OF THE SPECIAL SENSES AND GENERATION; (Being Vol. V of the Physiology of Man). Roy. 8vo, 18s.

J. MILNER FOTHERGILL, M.D.

Member of the Royal College of Physicians of London; Physician to the City of London Hospital for Diseases of the Chest, Victoria Park, &c.

I.

THE HEART AND ITS DISEASES, WITH THEIR TREATMENT; INCLUDING THE GOUTY HEART. Second Edition, entirely re-written, copiously illustrated with woodcuts and lithographic plates. 8vo. 16s.

II.

INDIGESTION, BILIOUSNESS, AND GOUT IN ITS PROTEAN ASPECTS.

PART I.—INDIGESTION AND BILIOUSNESS. Post 8vo, 7s. 6d.
PART II.—GOUT IN ITS PROTEAN ASPECTS. Post 8vo, 7s. 6d.

III.

HEART STARVATION. (Reprinted from the Edinburgh Medical Journal), 8vo, 1s.

ERNEST FRANCIS, F.C.S.

Demonstrator of Practical Chemistry, Charing Cross Hospital.

PRACTICAL EXAMPLES IN QUANTITATIVE ANALYSIS, forming a Concise Guide to the Analysis of Water, &c. Illustrated, fcap. 8vo, 2s. 6d.

HENEAGE GIBBES, M.D.

Lecturer on Physiology and Histology in the Medical School of Westminster Hospital; late Curator of the Anatomical Museum at King's College.

PRACTICAL HISTOLOGY AND PATHOLOGY. Second Edit. revised and enlarged. Crown 8vo, 5s.

C. A. GORDON, M.D., C.B.

Deputy Inspector General of Hospitals, Army Medical Department.

REMARKS ON ARMY SURGEONS AND THEIR WORKS. Demy 8vo, 5s.

W. R. GOWERS, M.D., F.R.C.P. M.R.C.S.
Physician to University College Hospital, &c.

DIAGRAMS FOR THE RECORD OF PHYSICAL SIGNS. In books of 12 sets of figures, 1s. Ditto, unbound, 1s.

SAMUEL D. GROSS, M.D., LL.D., D.C.L., OXON.
Professor of Surgery in the Jefferson Medical College of Philadelphia.

A PRACTICAL TREATISE ON THE DISEASES, INJURIES, AND MALFORMATIONS OF THE URINARY BLADDER, THE PROSTATE GLAND; AND THE URETHRA. Third Edition, revised and edited by S. W. GROSS, A.M., M.D., Surgeon to the Philadelphia Hospital. Illustrated by 170 engravings, 8vo, 18s.

SAMUEL W. GROSS, A.M., M.D.
Surgeon to, and Lecturer on Clinical Surgery in, the Jefferson Medical College Hospital, and the Philadelphia Hospital, &c.

A PRACTICAL TREATISE ON TUMOURS OF THE MAMMARY GLAND: embracing their Histology, Pathology, Diagnosis, and Treatment. With Illustrations, 8vo, 10s. 6d.

WILLIAM A. HAMMOND, M.D.
Professor of Mental and Nervous Diseases in the Medical Department of the University of the City of New York, &c.

I.

A TREATISE ON THE DISEASES OF THE NERVOUS SYSTEM. Seventh edition, with 112 Illustrations, large 8vo, 25s.

II.

A TREATISE ON INSANITY. Large 8vo, 25s.

[Just published.

III.

SPIRITUALISM AND ALLIED CAUSES AND CONDITIONS OF NERVOUS DERANGEMENT. With Illustrations, post 8vo, 8s. 6d.

ALEXANDER HARVEY, M.A., M.D.
Emeritus Professor of Materia Medica in the University of Aberdeen; Consulting Physician to the Aberdeen Royal Infirmary, &c.

FIRST LINES OF THERAPEUTICS; as based on the Modes and the Processes of Healing, as occurring Spontaneously in Disease; and on the Modes and the Processes of Dying, as resulting Naturally from Disease. In a series of Lectures. Post 8vo, 5s.

ALEXANDER HARVEY, M.D.
Emeritus Professor of Materia Medica in the University of Aberdeen, &c.
AND
ALEXANDER DYCE DAVIDSON, M.D.
Professor of Materia Medica in the University of Aberdeen.

SYLLABUS OF MATERIA MEDICA FOR THE USE OF TEACHERS AND STUDENTS. Based on a selection or definition of subjects in teaching and examining; and also on an estimate of the relative values of articles and preparations in the British Pharmacopœia with doses affixed. Seventh Edition, 32mo.

[In preparation.

GRAILY HEWITT, M.D.
Professor of Midwifery and Diseases of Women in University College; Obstetrical Physician to University College Hospital, &c.

OUTLINES OF PICTORIAL DIAGNOSIS OF DISEASES OF WOMEN. Fol. 6s.

BERKELEY HILL, M.B. LOND., F.R.C.S.
Professor of Clinical Surgery in University College; Surgeon to University College Hospital and to the Lock Hospital.

THE ESSENTIALS OF BANDAGING. For Managing Fractures and Dislocations; for administering Ether and Chloroform; and for using other Surgical Apparatus. Fifth Edition, revised and much enlarged, with Illustrations, fcap. 8vo, 5s.

BERKELEY HILL, M.B. LOND., F.R.C.S.
Professor of Clinical Surgery in University College; Surgeon to University College Hospital and to the Lock Hospital.
AND
ARTHUR COOPER, L.R.C.P., M.R.C.S.
Late House Surgeon to the Lock Hospital, &c.

I.

SYPHILIS AND LOCAL CONTAGIOUS DISORDERS. Second Edition, entirely re-written, royal 8vo, 18s.

II.

THE STUDENT'S MANUAL OF VENEREAL DISEASES. Being a Concise Description of those Affections and of their Treatment. Third Edition, post 8vo, 2s. 6d.

HINTS TO CANDIDATES FOR COMMISSIONS IN THE PUBLIC MEDICAL SERVICES, WITH EXAMINATION QUESTIONS, VOCABULARY OF HINDUSTANI MEDICAL TERMS, ETC. 8vo, 2s.

SIR W. JENNER, Bart., M.D.
Physician in Ordinary to H.M. the Queen, and to H.R.H. the Prince of Wales.

THE PRACTICAL MEDICINE OF TO-DAY: Two Addresses delivered before the British Medical Association, and the Epidemiological Society, (1869). Small 8vo, 1s. 6d.

C. M. JESSOP, M.R.C.P.
Associate of King's College, London; Brigade Surgeon H.M. British Forces.

ASIATIC CHOLERA, being a Report on an Outbreak of Epidemic Cholera in 1876 at a Camp near Murree in India. With map, demy 8vo, 2s. 6d.

GEORGE LINDSAY JOHNSON, M.A., M.B., B.C. CANTAB.

Clinical Assistant, late House Surgeon and Chloroformist, Royal Westminster Ophthalmic Hospital; Medical and Surgical Registrar, &c.

A NEW METHOD OF TREATING CHRONIC GLAUCOMA, based on Recent Researches into its Pathology. With Illustrations and coloured frontispiece, demy 8vo, 3s. 6d.

NORMAN W. KINGSLEY, M.D.S., D.D.S.

President of the Board of Censors of the State of New York; Member of the American Academy of Dental Science, &c.

A TREATISE ON ORAL DEFORMITIES AS A BRANCH OF MECHANICAL SURGERY. With over 350 Illustrations, 8vo, 16s.

E. A. KIRBY, M.D., M.R.C.S. ENG.

Late Physician to the City Dispensary.

I.

A PHARMACOPŒIA OF SELECTED REMEDIES, WITH THERAPEUTIC ANNOTATIONS, Notes on Alimentation in Disease, Air, Massage, Electricity and other Supplementary Remedial Agents, and a Clinical Index; arranged as a Handbook for Prescribers. Sixth Edition, enlarged and revised, demy 4to, 7s.

II.

ON THE VALUE OF PHOSPHORUS AS A REMEDY FOR LOSS OF NERVE POWER. Fifth Edition, 8vo, 2s. 6d.

J. WICKHAM LEGG, F.R.C.P.

Assistant Physician to Saint Bartholomew's Hospital, and Lecturer on Pathological Anatomy in the Medical School.

I.

ON THE BILE, JAUNDICE, AND BILIOUS DISEASES. With Illustrations in chromo-lithography, 719 pages, roy. 8vo, 25s.

II.

A GUIDE TO THE EXAMINATION OF THE URINE; intended chiefly for Clinical Clerks and Students. Fifth Edition, revised and enlarged, with additional Illustrations, fcap. 8vo, 2s. 6d.

III.

A TREATISE ON HÆMOPHILIA, SOMETIMES CALLED THE HEREDITARY HÆMORRHAGIC DIATHESIS. Fcap. 4to, 7s. 6d.

DR. GEORGE LEWIN.

Professor at the Fr. Wilh. University, and Surgeon-in-Chief of the Syphilitic Wards and Skin Disease Wards of the Charité Hospital, Berlin.

THE TREATMENT OF SYPHILIS WITH SUBCUTANEOUS SUBLIMATE INJECTIONS. Translated by DR. CARL PROEGLE, and DR. E. M. GALE, late Surgeon United States Army. Small 8vo, 7s.

LEWIS'S PRACTICAL SERIES.

Under this title Mr. LEWIS purposes publishing a complete Series of Monographs, embracing the various branches of Medicine and Surgery.

The volumes, written by well-known Hospital Physicians and Surgeons recognized as authorities in the subjects of which they treat, are in active preparation. The works are intended to be of a THOROUGHLY PRACTICAL nature, calculated to meet the requirements of the general practitioner, and to present the most recent information in a compact and readable form; the volumes will be handsomely got up, and issued at low prices, varying with the size of the works.

BODILY DEFORMITIES AND THEIR TREATMENT: A HANDBOOK OF PRACTICAL ORTHOPÆDICS. By H. A. REEVES, F.R.C.S. Edin., Senior Assistant Surgeon and Teacher of Practical Surgery at the London Hospital; Surgeon to the Royal Orthopædic Hospital, &c. With numerous Illustrations, cr. 8vo. *[In the press.*

DENTAL SURGERY FOR GENERAL PRACTITIONERS AND STUDENTS OF MEDICINE. By ASHLEY W. BARRETT, M.B. Lond., M.R.C.S., L.D.S., Dental Surgeon to, and Lecturer on Dental Surgery and Pathology in the Medical School of, the London Hospital. With Illustrations, crown 8vo. *[In the press.*

*** Further volumes will be announced in due course.

LEWIS'S POCKET MEDICAL VOCABULARY. *[In the Press.*

J. S. LOMBARD, M.D.
Formerly Assistant Professor of Physiology in Harvard College.

I.

EXPERIMENTAL RESEARCHES ON THE REGIONAL TEMPERATURE OF THE HEAD, under Conditions of Rest, Intellectual Activity and Emotion. With Illustrations, 8vo, 8s.

II.

ON THE NORMAL TEMPERATURE OF THE HEAD. 8vo, 5s.

WILLIAM THOMPSON LUSK, A.M., M.D.
Professor of Obstetrics and Diseases of Women in the Bellevue Hospital Medical College, &c.

THE SCIENCE AND ART OF MIDWIFERY. Second Edition, with numerous Illustrations, 8vo, 18s.

JOHN MACPHERSON, M.D.
Inspector-General of Hospitals H.M. Bengal Army (Retired).
Author of "Cholera in its Home," &c.

ANNALS OF CHOLERA FROM THE EARLIEST PERIODS TO THE YEAR 1817. With a map. Demy 8vo, 7s. 6d.

DR. V. MAGNAN.
Physician to St. Anne Asylum, Paris; Laureate of the Institute.

ON ALCOHOLISM, the Various Forms of Alcoholic Delirium and their Treatment. Translated by W. S. GREENFIELD, M.D., M.R.C.P. 8vo, 7s. 6d.

A. COWLEY MALLEY, B.A., M.B., B.CH. T.C.D.,

PHOTO-MICROGRAPHY; including a description of the Wet Collodion and Gelatino-Bromide Processes, together with the best methods of Mounting and Preparing Microscopic Objects for Photo-Micrography. Second Edition, with Photographs and Illustrations, crown 8vo. [*In the press.*

PATRICK MANSON, M.D., C.M.
Amoy, China.

THE FILARIA SANGUINIS HOMINIS; AND CERTAIN NEW FORMS. OF PARASITIC DISEASE IN INDIA, CHINA, AND WARM COUNTRIES. Illustrated with Plates and Charts. 8vo, 10s. 6d.

PROFESSOR MARTIN.

MARTIN'S ATLAS OF OBSTETRICS AND GYNÆCOLOGY. Edited by A. MARTIN, Docent in the University of Berlin. Translated and edited with additions by FANCOURT BARNES, M.D., M.R.C.P., Physician to the Chelsea Hospital for Women; Obstetric Physician to the Great Northern Hospital; and to the Royal Maternity Charity of London, &c. Medium 4to, Morocco half bound, 31s. 6d. net.

WILLIAM MARTINDALE, F.C.S.
Late Examiner of the Pharmaceutical Society, and late Teacher of Pharmacy and Demonstrator of Materia Medica at University College.

AND

W. WYNN WESTCOTT, M.B. LOND.
Deputy Coroner for Central Middlesex.

THE EXTRA PHARMACOPŒIA of Unofficial Drugs and Chemical and Pharmaceutical Preparations, with References to their Use abstracted from the Medical Journals and a Therapeutic Index of Diseases and Symptoms. Third Edition, revised with numerous additions, limp roan, med. 24mo, 7s., and an edition in fcap. 8vo, with room for marginal notes, cloth, 7s. [*Now ready.*

J. F. MEIGS, M.D.
Consulting Physician to the Children's Hospital, Philadelphia.

AND

W. PEPPER, M.D.
Lecturer on Clinical Medicine in the University of Pennsylvania.

A PRACTICAL TREATISE ON THE DISEASES OF CHILDREN. Seventh Edition, revised and enlarged, roy. 8vo, 28s.

Wm. JULIUS MICKLE, M.D., M.R.C.P. LOND.
Member of the Medico-Psychological Association of Great Britain and Ireland; Member of the Clinical Society, London; Medical Superintendent, Grove Hall Asylum, London.

GENERAL PARALYSIS OF THE INSANE. 8vo, 10s.

KENNETH W. MILLICAN, B.A. CANTAB., M.R.C.S.

THE EVOLUTION OF MORBID GERMS: A Contribution to Transcendental Pathology. Cr. 8vo, 3s. 6d.

E. A. MORSHEAD, M.R.C.S., L.R.C.P.

Assistant to the Professor of Medicine in University College, London.

TABLES OF THE PHYSIOLOGICAL ACTION OF DRUGS. Fcap. 8vo, 1s.

A. STANFORD MORTON, M.B., F.R.C.S. ED.

Senior Assistant Surgeon, Royal South London Ophthalmic Hospital.

REFRACTION OF THE EYE: Its Diagnosis, and the Correction of its Errors, with Chapter on Keratoscopy. Second edit., with Illustrations, small 8vo, 2s. 6d.

WILLIAM MURRELL, M.D., F.R.C.P.

Lecturer on Materia Medica and Therapeutics at Westminster Hospital; Examiner in Materia Medica, University of Edinburgh.

I.

WHAT TO DO IN CASES OF POISONING. Fourth Edition, revised and enlarged, royal 32mo, 3s. 6d.

II.

NITRO-GLYCERINE AS A REMEDY FOR ANGINA PECTORIS. Crown 8vo, 3s. 6d.

WILLIAM NEWMAN, M.D. LOND., F.R.C.S.

Surgeon to the Stamford Infirmary.

SURGICAL CASES: Mainly from the Wards of the Stamford, Rutland, and General Infirmary, 8vo, paper boards, 4s. 6d.

DR. FELIX von NIEMEYER.

Late Professor of Pathology and Therapeutics; Director of the Medical Clinic of the University of Tübingen.

A TEXT-BOOK OF PRACTICAL MEDICINE, WITH PARTICULAR REFERENCE TO PHYSIOLOGY AND PATHOLOGICAL ANATOMY. Translated from the Eighth German Edition, by special permission of the Author, by GEORGE H. HUMPHREY, M.D., and CHARLES E. HACKLEY, M.D., Revised Edition, 2 vols., large 8vo, 36s.

C. F. OLDHAM, M.R.C.S., L.R.C.P.

Surgeon H.M. Indian Forces; late in Medical charge of the Dalhousie Sanitarium.

WHAT IS MALARIA? and why is it most intense in hot climates? An explanation of the Nature and Cause of the so-called Marsh Poison, with the Principles to be observed for the Preservation of Health in Tropical Climates and Malarious Districts. Demy 8vo, 7s. 6d.

G. OLIVER, M.D., M.R.C.P.

I.

THE HARROGATE WATERS: Data Chemical and Therapeutical, with notes on the Climate of Harrogate. Addressed to the Medical Profession. Crown 8vo, with Map of the Wells, 3s. 6d.

II.

ON BEDSIDE URINE TESTING: including Quantitative Albumen and Sugar. Third edition, revised and enlarged, fcap. 8vo. [*In the press.*

JOHN S. PARRY, M.D.

Obstetrician to the Philadelphia Hospital, Vice-President of the Obstetrical and Pathological Societies of Philadelphia, &c.

EXTRA-UTERINE PREGNANCY; Its Causes, Species, Pathological Anatomy, Clinical History, Diagnosis, Prognosis and Treatment. 8vo, 8s.

E. RANDOLPH PEASLEE, M.D., LL.D.

Late Professor of Gynæcology in the Medical Department of Dartmouth College; President of the New York Academy of Medicine, &c., &c.

OVARIAN TUMOURS: Their Pathology, Diagnosis, and Treatment, especially by Ovariotomy. Illustrations, roy. 8vo, 16s.

G. V. POORE, M.D., F.R.C.P.

Professor of Medical Jurisprudence, University College; Assistant Physician to, and Physician in charge of the Throat Department of University College Hospital.

LECTURES ON THE PHYSICAL EXAMINATION OF THE MOUTH AND THROAT. With an Appendix of Cases. 8vo, 3s. 6d.

R. DOUGLAS POWELL, M.D., F.R.C.P. LOND.

Physician to the Middlesex Hospital, and Physician to the Hospital for Consumption and Diseases of the Chest at Brompton.

DISEASES OF THE LUNGS AND PLEURÆ. Third Edition, rewritten and enlarged. With Illustrations, 8vo. [*In preparation.*

AMBROSE L. RANNEY, A.M., M.D.
Adjunct Professor of Anatomy in the University of New York, etc.

THE APPLIED ANATOMY OF THE NERVOUS SYSTEM, being a study of this portion of the Human Body from a standpoint of its general interest and practical utility, designed for use as a Text-book and a Work of Reference. With 179 Illustrations, 8vo, 20s.

H. A. REEVES, F.R.C.S. ED.
Senior Assistant Surgeon and Teacher of Practical Surgery at the London Hospital; Surgeon to the Royal Orthopædic Hospital, &c.

BODILY DEFORMITIES AND THEIR TREATMENT: A Handbook of Practical Orthopædics. With numerous Illustrations, crown 8vo. [*In the press.*
Lewis's Practical Series].

RALPH RICHARDSON, M.A., M.D.
Fellow of the College of Physicians, Edinburgh.

ON THE NATURE OF LIFE: An Introductory Chapter to Pathology. Second Edition, revised and enlarged. Fcap. 4to, 10s. 6d.

W. RICHARDSON, M.A., M.D., M.R.C.P.

REMARKS ON DIABETES, ESPECIALLY IN REFERENCE TO TREATMENT. Demy 8vo, 4s. 6d.

SYDNEY RINGER, M.D.
Professor of the Principles and Practice of Medicine in University College; Physician to, and Professor of Clinical Medicine in, University College Hospital.

I.

A HANDBOOK OF THERAPEUTICS. Tenth Edition, 8vo, 15s.

II.

ON THE TEMPERATURE OF THE BODY AS A MEANS OF DIAGNOSIS AND PROGNOSIS IN PHTHISIS. Second Edition, small 8vo, 2s. 6d.

FREDERICK T. ROBERTS, M.D., B.SC., F.R.C.P.
Examiner in Medicine at the Royal College of Surgeons; Professor of Therapeutics in University College; Physician to University College Hospital; Physician to Brompton Consumption Hospital, &c.

I.

A HANDBOOK OF THE THEORY AND PRACTICE OF MEDICINE. Fifth Edition, with Illustrations, in one volume, large 8vo, 21s.

II.

NOTES ON MATERIA MEDICA AND PHARMACY. Fcap. 8vo, 7s. 6d. [*Now ready.*

D. B. St. JOHN ROOSA, M.A., M.D.
Professor of Diseases of the Eye and Ear in the University of the City of New York; Surgeon to the Manhattan Eye and Ear Hospital; Consulting Surgeon to the Brooklyn Eye and Ear Hospital, &c., &c.

A PRACTICAL TREATISE ON THE DISEASES OF THE EAR, including the Anatomy of the Organ. Fourth Edition, Illustrated by wood engravings and chromo-lithographs, large 8vo, 22s.

J. BURDON SANDERSON, M.D., LL.D., F.R.S.
Jodrell Professor of Physiology in University College, London.

UNIVERSITY COLLEGE COURSE OF PRACTICAL EXERCISES IN PHYSIOLOGY. With the co-operation of F. J. M. PAGE, B.Sc., F.C.S.; W. NORTH, B.A., F.C.S., and AUG. WALLER, M.D. Demy 8vo, 3s. 6d.

W. H. O. SANKEY, M.D. LOND., F.R.C.P.
Late Lecturer on Mental Diseases, University College and School of Medicine for Women, London; Formerly Medical Superintendent (Female Department) of Hanwell Asylum; President of Medico-Psychological Society, &c.

LECTURES ON MENTAL DISEASE. Second Edition, with coloured plates, 8vo, 12s. 6d. [*Now ready.*

ALDER SMITH, M.B. LOND., F.R.C.S.
Resident Medical Officer, Christ's Hospital, London.

RINGWORM: Its Diagnosis and Treatment. Second Edition, rewritten and enlarged. With Illustrations, fcap. 8vo, 4s. 6d.

J. LEWIS SMITH, M.D.
Physician to the New York Infants' Hospital; Clinical Lecturer on Diseases of Children in Bellevue Hospital Medical College.

A TREATISE ON THE DISEASES OF INFANCY AND CHILDHOOD. Fifth Edition, with Illustrations, large 8vo, 21s.

FRANCIS W. SMITH, M.B., B.S.

THE LEAMINGTON WATERS; CHEMICALLY, THERAPEUTICALLY AND CLINICALLY CONSIDERED; with observations on the climate of Leamington. With Illustrations, crown 8vo, 2s. 6d.

JAMES STARTIN, M.B., M.R.C.S.
Surgeon and Joint Lecturer to St. John's Hospital for Diseases of the Skin.

LECTURES ON THE PARASITIC DISEASES OF THE SKIN. VEGETOID AND ANIMAL. With Illustrations, Crown 8vo, 3s. 6d.

HENRY R. SWANZY, M.A., M.B., F.R.C.S.I.
Examiner in Ophthalmic Surgery, University of Dublin; Surgeon to the National Eye and Ear Infirmary, Dublin; Ophthalmic Surgeon at the Adelaide Hospital, Dublin.

HANDBOOK OF DISEASES OF THE EYE AND THEIR TREATMENT. Illustrated with wood-engravings, colour tests, etc., large post 8vo, 10s. 6d. [*Now ready.*

LEWIS A. STIMSON, B.A., M.D.

Surgeon to the Presbyterian Hospital; Professor of Pathological Anatomy in the Medical Faculty of the University of the City of New York.

A MANUAL OF OPERATIVE SURGERY. With three hundred and thirty-two Illustrations. Post 8vo, 10s. 6d.

HUGH OWEN THOMAS, M.R.C.S.

I.

DISEASES OF THE HIP, KNEE, AND ANKLE JOINTS, with their Deformities, treated by a new and efficient method. With an Introduction by RUSHTON PARKER, F.R.C.S, Lecturer on Surgery at the School of Medicine, Liverpool. Second Edition, 8vo, 25s.

II.

CONTRIBUTIONS TO MEDICINE AND SURGERY:—

PART 1.—Intestinal Obstruction; with an Appendix on the Action of Remedies. 10s.

,, 2.—The Principles of the Treatment of Joint Disease, Inflammation, Anchylosis, Reduction of Joint Deformity, Bone Setting. 5s.

,, 5.—On Fractures of the Lower Jaw. 1s.

,, 8.—The Inhibition of Nerves by Drugs. Proof that Inhibitory Nerve-Fibres do not exist. 1s.

(Parts 3, 4, 6, 7, 9, 10, are expected shortly).

J. ASHBURTON THOMPSON, M.R.C.S.

Late Surgeon at King's Cross to the Great Northern Railway Company.

FREE PHOSPHORUS IN MEDICINE WITH SPECIAL REFERENCE TO ITS USE IN NEURALGIA. A contribution to Materia Medica and Therapeutics. An account of the History, Pharmaceutical Preparations, Dose, Internal Administration, and Therapeutic uses of Phosphorus; with a Complete Bibliography of this subject, referring to nearly 200 works upon it. Demy 8vo, 7s. 6d.

J. C. THOROWGOOD, M.D.

Assistant Physician to the City of London Hospital for Diseases of the Chest.

THE CLIMATIC TREATMENT OF CONSUMPTION AND CHRONIC LUNG DISEASES. Third Edition, post 8vo, 3s 6d.

EDWARD T. TIBBITS, M.D. LOND.

Physician to the Bradford Infirmary; and to the Bradford Fever Hospital.

MEDICAL FASHIONS IN THE NINETEENTH CENTURY, including a Sketch of Bacterio-Mania and the Battle of the Bacilli. Crown 8vo, 2s. 6d.

LAURENCE TURNBULL, M.D., PH.G.

Aural Surgeon to Jefferson Medical College Hospital, &c., &c.

ARTIFICIAL ANÆSTHESIA: A Manual of Anæsthetic Agents, and their Employment in the Treatment of Disease. Second Edition, with Illustrations, crown 8vo, 6s.

W. H. VAN BUREN, M.D., LL.D.
Professor of Surgery in the Bellevue Hospital Medical College.

DISEASES OF THE RECTUM: And the Surgery of the Lower Bowel. Second Edition, with Illustrations, 8vo, 14s.

RUDOLPH VIRCHOW, M.D.
Professor in the University, and Member of the Academy of Sciences of Berlin, &c., &c.

INFECTION-DISEASES IN THE ARMY, Chiefly Wound Fever, Typhoid, Dysentery, and Diphtheria. Translated from the German by JOHN JAMES, M.B., F.R.C.S. Fcap. 8vo, 1s. 6d.

ALFRED VOGEL, M.D.
Professor of Clinical Medicine in the University of Dorpat, Russia.

A PRACTICAL TREATISE ON THE DISEASES OF CHILDREN. Translated and Edited by H. RAPHAEL, M.D. From the Fourth German Edition, illustrated by six lithographic plates, part coloured, large 8vo, 18s.

A. DUNBAR WALKER, M.D., C.M.

THE PARENT'S MEDICAL NOTE BOOK. Oblong post 8vo, cloth, 1s. 6d.

W. SPENCER WATSON, F.R.C.S. ENG., B.M. LOND.
Surgeon to the Great Northern Hospital; Surgeon to the Royal South London Ophthalmic Hospital.

I.

DISEASES OF THE NOSE AND ITS ACCESSORY CAVITIES. Profusely Illustrated. Demy 8vo, 18s.

II.

EYEBALL-TENSION: Its Effects on the Sight and its Treatment. With woodcuts, p. 8vo, 2s. 6d.

III.

ON ABSCESS AND TUMOURS OF THE ORBIT. Post 8vo, 2s. 6d.

A. DE WATTEVILLE, M.A., M.D., B.SC., M.R.C.S.
Physician in Charge of the Electro-therapeutical Department at St. Mary's Hospital.

A PRACTICAL INTRODUCTION TO MEDICAL ELECTRICITY. Second Edition, re-written and enlarged, copiously Illustrated, 8vo, 9s. [*Just published.*

FRANCIS H. WELCH, F.R.C.S.
Surgeon Major, A.M.D.

ENTERIC FEVER: as Illustrated by Army Data at Home and Abroad, its Prevalence and Modifications, Ætiology, Pathology and Treatment. 8vo, 5s. 6d. [*Just published.*

DR. F. WINCKEL.
Formerly Professor and Director of the Gynæcological Clinic at the University of Rostock.

THE PATHOLOGY AND TREATMENT OF CHILD-BED: A Treatise for Physicians and Students. Translated from the Second German edition, with many additional notes by the Author, by J. R. CHADWICK, M.D., 8vo, 14s.

EDWARD WOAKES, M.D. LOND.

Senior Aural Surgeon and Lecturer on Aural Surgery at the London Hospital; Senior Surgeon to the Hospital for Diseases of the Throat.

ON DEAFNESS, GIDDINESS AND NOISES IN THE HEAD.

VOL. I.—POST-NASAL CATARRH, AND DISEASES OF THE NOSE CAUSING DEAFNESS. With Illustrations, cr. 8vo, 6s. 6d.

VOL. II.—ON DEAFNESS, GIDDINESS AND NOISES IN THE HEAD. Third Edition, with Illustrations, cr. 8vo. [*In preparation.*

E. T. WILSON, B.M. OXON., F.R.C.P. LOND.

Physician to the Cheltenham General Hospital and Dispensary.

DISINFECTANTS AND HOW TO USE THEM. In Packets of one doz. price 1s.

Clinical Charts For Temperature Observations, etc.

Arranged by W. RIGDEN, M.R.C.S. Price 7s. per 100, or 1s. per dozen.

Each Chart is arranged for four weeks, and is ruled at the back for making notes of cases; they are convenient in size, and are suitable both for hospital and private practice.

PERIODICAL WORKS PUBLISHED BY H. K. LEWIS.

THE NEW SYDENHAM SOCIETY'S PUBLICATIONS. Annual Subscription, One Guinea.

(Report of the Society, with Complete List of Works and other information, gratis on application.)

ARCHIVES OF PEDIATRICS. A Monthly Journal, devoted to the Diseases of Infants and Children. Annual Subscription, 12s. 6d., post free.

THE NEW YORK MEDICAL JOURNAL. A Weekly Review of Medicine. Annual Subscription, One Guinea, post free.

THE THERAPEUTIC GAZETTE. A Monthly Journal, devoted to the Science of Pharmacology, and to the introduction of New Therapeutic Agents. Annual Subscription, 5s., post free.

THE GLASGOW MEDICAL JOURNAL. Published Monthly. Annual Subscription, 20s., post free. Single numbers, 2s. each.

LIVERPOOL MEDICO-CHIRURGICAL JOURNAL, including the Proceedings of the Liverpool Medical Institution. Published twice yearly, 3s. 6d. each.

THE INDIAN MEDICAL JOURNAL. A Journal of Medical and Sanitary Science specially devoted to the Interests of the Medical Services. Annual Subscription, 24s., post free.

THE MIDLAND MEDICAL MISCELLANY AND PROVINCIAL MEDICAL JOURNAL. Annual Subscription, 7s. 6d., post free.

TRANSACTIONS OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA. Volumes I to VI., now ready, 8vo, 10s. 6d. each.

*** MR. LEWIS has transactions with the leading publishing firms in America for the sale of his publications in that country. Arrangements are made in the interests of Authors either for sending a number of copies of their works to the United States, or having them reprinted there, as may be most advantageous.

Mr. Lewis's publications can be procured of any bookseller in any part of the world.

London: Printed by H. K Lewis, 136 Gower Street, W.C.

00069952

Digitized with financial assistance from the
Government of Maharashtra
on 05 October, 2018